

Web data warehousing: What's not to like? Our expanded Intranets supplement follows page 48

"Stay-on" contracts in exchange for expensive training take a heavy toll on IS loyalty. Careers, page 89

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Web-enabling the enterprise

Mainframes brace for browser access

By Tim Ouellette

MAINFRAME SHOPS are coming to grips with the fact that they soon will be invaded by probing Web browsers.

In the coming months, several vendors, including Apertus Technologies, Inc., will roll out products that make browser-tomainframe connectivity a reality

(see chart, page 107).

Businesses can use this new access to get data now locked in the mainframe — estimated to be 70% of corporate data worldwide — out to a wider audience.

The primary goal of most of the new products is first to provide basic mainframe terminal emulation from a World Wide Web browser. Then users can Web-enable mainframe applications via Java applets or reliable middleware products, possibly without reprogramming any of Mainframes, page 107

New tools support complex 'net sites

By Mitch Wagner

VENDORS ARE starting to roll out the big bulldozers of Internet development tools: software packages designed to build large, complicated World Wide Web sites that span the enterprise.

The tools were designed to help users build Internet applications that cover all aspects of a business, from marketing and communications to order entry, transaction processing, online sales and other mission-critical functions.

LEGACY ACCESS

These new lines of Internet earthmovers include features designed to let Web applications access information stored in legacy systems, such as mainframes, and client/server applications. Some have collaboration features that let technically savvy information systems managers collaborate with less-technical business managers, writers and artists. Some also have specialized servers designed for high performance.

The tools were designed to bring the same level of maturity

New tools, page 107

IS money can't buy happiness

A bigger paycheck didn't lure Glenn Hansen to another job

▶ Pay isn't top factor when weighing job offers

By Robert L. Scheier

IT'S NOT UNUSUAL for indemand IS professionals like Glenn Hansen to get several calls a week — or even several a day — trying to lure them to new jobs.

Hansen recently got an offer that included a 25% raise. He rejected it, but not because his current employer made a counteroffer. He stayed because "I'm going through a lot of training right now," says Hansen, a LAN specialist at Seta, Inc., a comput-

er consulting firm in McLean, Va. "I want to get my credentials up" before even considering a job offer, he said.

Hansen's not alone. A Computerworld survey of 200 information systems professionals found money wasn't the most important factor in deciding whether to jump ship.

Other factors, such as the opportunity to learn new technologies and having a good boss, were more important.

That's good news for IS man-Treat 'em right, page 77



A switch in time

HACK ATTACK REACT

Microsoft seeks to soothe ActiveX developers following prank. Page 8

IS reins in runaway projects

Users fight failures with better management

By Julia King

America's software projects were canceled, over budget or late. But that was a noticeable improvement over the 1995 figure of 84%, according to a survey of 360 companies.

The Standish Group International, Inc. survey explained that information systems departments are finally starting to focus on the rigors of project management.

Their motivation is simple: With IS project failures costing Project management, page 16



From interactive, revenuegenerating World Wide Web sites to intranets that streamline business, this year's Premier 100 honors Internet innovators. How did they do it? What did they learn? What obstacles were they up against? Find all this and more in the ninth Premier edition, bundled with this week's issue. (To

find out about ordering additional copies, see page 4.)

Keep it simple

recently had to call someone at one of *Computerworld*'s business partners. I didn't have the phone number, so I typed the URL into my browser and headed to the company's Web site to find it.

Ten minutes later, I was still looking.

What started as a quick request for basic business informa-

tion turned into a spelunking expedition through layers of information I didn't want. I never did find that phone number.

It's with this experience in mind that we begin this week an ongoing series of reviews of user Web sites (see page 72). Staff columnist Frank Hayes cruised through the offerings from the major airlines and found that many weren't doing a good job of optimizing their Web sites to meet the needs of customers.



In coming months, we'll look at many other industries and examine their sites through customers' eyes. We'll tell you how well these sites meet the basic informational needs of their tar-

1997 will be the year the Web gets real.

THE

BY

RICH

get audiences.

We believe the time is right for this service, because 1997 will be the year the Web gets real. International Data Corp. has estimated that 90% of large companies will

have Web sites by the end of this year. You simply have to be there. Expect to see an increasing number of sites get back to basics. Giant graphics and Shockwave animations will give way to simpler, more easily downloadable files with intuitive navigation paths.

Good design is about giving the user a rewarding experience. Unfortunately, no one has the answer to what makes a Web site easy to use. That's why we'll try to give you some best practices, pointing you to services and navigation techniques that work and ones that don't. I'm anxious to hear comments about our reviews. E-mail me at the address below or go to www.computerworld.com. You'll find my phone number there.

Paul Gillin, Editor Internet: paul_gillin@cw.com

TENNANT

WAVE

Web-ready rollout en route

► Client/server vendors prepare Internet modules

By Randy Weston

TOP CLIENT/SERVER application vendors are preparing to release Internet-ready application packages as the first batch of network computers lands in corporate offices.

That means information systems managers can load the complex software on centralized servers and let end users access modules on an as-needed basis via World Wide Web browsers.

Market leader SAP AG in Wayne, Pa., plans to release Web-enabled versions of its R/3 application package with Version 4.0, which is due out in late summer. No. 2 player Oracle Corp. in Redwood Shores, Calif., will port all 30 of its software modules to the Internet by June with Release 10.7.

Meanwhile, smaller vendors such as Denver-based J.D. Edwards & Co. and Atlanta-based American Software USA, Inc. are building Web-ready modules. Minneapolis-based Lawson Software, Inc. did the same last year.

Dunlop Tire Corp. plans to exploit the Web-ready software trend and buy 700 Network Computers from Oracle or Sun Microsystems, Inc. The Buffalo, N.Y., tire maker will test Oracle 10.7 on the Network Computers

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this summer to make sure functionality is maintained in the thin-client environment.

"We have some users with \$4,000 or \$5,000 pieces of equipment on their desk that only go into one application a day," said Gary Payne, Dunlop's systems development group leader. "They go in, do their work and get off. Those people are our initial focal point."

Payne said the Network Computer should make upgrading and deploying software packages a snap compared with the current method of individually installing them on a multitude of PCs.

But the Web-based applications aren't just for network devices. Scott Lundstrom, analyst at Advanced Manufacturing Research, Inc. in Boston, said many companies — especially those with independent distributors and remote offices — can also benefit.

"Financial modules are where many users get the benefit out of this," Lundstrom said. "They can make this [real-time financial] data available to distributors, customers and sales representatives quickly."

Beer maker Heineken USA, Inc. doesn't have any network computer aspirations yet, but it is taking advantage of Webbased applications to give its 450 independent distributors access to order information.

Heineken's distributors use Netscape Communications Corp. browsers to enter and track orders with Heineken USA headquarters in White Plains, N.Y.

The distributors access demand-chain planning software from American Software, which captures the order and makes the information immediately available to Heineken officials.

Heineken expects the system to cut lead time on deliveries from 12 weeks to four.

The system also lets Heineken turn its district managers into regional salespeople instead of order-takers, said Tom Bongiovanni, Heineken's systems manager.

Microsoft to fix Win95 laptop bugs

By April Jacobs and Mindy Blodgett

windows 95 was advertised as a plug-and-play operating sys-

tem that benefits mobile users.

But users and analysts claim Windows 95 never had the true plug-and-play functionality and power management features that were promised. And that has resulted in buggy laptops.

Indeed, Microsoft Corp. has certified related bugs as problems on its World Wide Web site at www.microsoft.com. The company couldn't be reached for comment last week but said on its Web page that it is working on a fix.

Timothy Schmidt, an analyst at Encore Consulting Group, Inc. in Longwood, Fla., said one of the two most recent bugs mentioned on the Microsoft Web site involves the power management driver. The Windows 95 power management

driver may not be able to handle a suspend request and may cause the computer to power-off in various situations, including when the computer is placed in its docking station and turned on.

Windows 95 also has problems with power management features in PC card modems. Chris DeVoney, a laptop tester at Computerworld and a syndicated columnist, said he ran into the problem when he tested a new Intel Corp. processor-based laptop from Gateway 2000, Inc. using a 3Com Corp. combination PC/modem card.

Instead of just poweringdown the modem, DeVoney said, the PC card powered-down the whole system.

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"I think the cursor's not moving, Mr. Dunt, because you've got your hand on the chalk board eraser and not the mouse."

Oracle8 finally taking shape

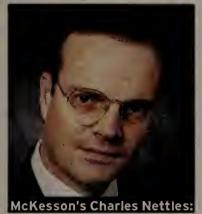
▶ Object plans move beyond prophecy for long-awaited database upgrade

By Craig Stedman

AFTER MONTHS of silence, Oracle Corp. is starting to firm up plans for building object technology in to its upcoming Oracle8 database, according to users and analysts who have talked to company officials.

Sources said the features Oracle is promising for Oracle8 include the ability to encapsulate business processes in objects and the ability to link objects via pointers. Along with support for nonrelational data such as text and images, that should make Oracle8 a reasonable — but less complete — response to Informix Software, Inc.'s Universal Server database, analysts said. Informix shipped Universal Server late last year.

The object capabilities of both databases are aimed at streamlining application development



Oracle appears to be "moving much closer to supporting real object capabilities" with Oracle8

and supporting Internet and multimedia usage. But Oracle has been unusually secretive about the object-oriented aspects of Oracle8. Even pluggedin users said it has been hard to get commitments until recently.

Charles Nettles, director of

technology at the Information Technologies division of McKesson Corp. in San Francisco, said he previously "heard a lot of equivocation" from Oracle. Oracle officials "talked objects," he said, "but they really didn't support them" in the first beta-test release of Oracle8, which went out last summer.

Nettles, who is awaiting a promised second batch of beta code, declined to comment on the specific object capabilities that Oracle officials said will be in Oracle8 when it ships in June. But he said McKesson's technicians "are much more satisfied today" about Oracle's plans.

Objects should let McKesson's business users "create a picture" of their requirements for the pharmaceutical distributor's application developers, Nettles said. That should result in software "that meets business needs instead of the fantasies of developers," he said.

LAYERS AND VIEWS

Oracle officials wouldn't comment on Oracle8. Sources said the Redwood Shores, Calif., vendor is working to include the following features in the database management software:

■A business objects layer that lets business processes be turned into objects. For example, a company could develop an object to automatically create purchase orders for users.

- Object views of relational data.
- ■The ability to store text, images and spatial data as large objects in database tables.
- Pointers for linking objects

Versant upgrade boosts performance

Versant Object Technology Corp., the most gung ho of the object database vendors at targeting corporate applications, this week plans to introduce a new version of its software geared toward better performance and scalability.

Versant Release 5.0 adds full support for multiprocessing and multithreading, said officials at the Menlo Park, Calif., company. Database clients set up as application servers in three-tier environments also can now run multiple user sessions simultaneously.

Faced with the installed might of relational software, most object database vendors have turned to the Internet or specialized applications. But Versant "is trying to scale up to handle more transaction processing," said Joshua Duhl, an analyst at Stillpoint Consulting in Cambridge, Mass.

Object/relational hybrids emerging from database heavy-weights such as Informix Software, Inc. and Oracle Corp. pose another potential hurdle for pure object databases. The hybrids help legitimize objects, but they could push Versant and its peers into "very complex applications that just have to be done in an object database," Duhl said.

WebFlow Corp. in Santa Clara, Calif., built an Internet-enabled document-management groupware product on top of Versant's database and is beta-testing Release 5.0. Using relational software would have required "performance-prohibitive" data joins, said Roland Crunk, director of open systems development at WebFlow. Versant's new release should eliminate the need to manually manage the process of running data requests from multiple users at the same time, he added.

The upgrade will ship in May, with prices starting at \$2,150, Versant officials said. — Craig Stedman

that depend on one another, plus some level of polymorphism so objects can be tailored for different users.

Informix's Universal Server, which supports a much wider range of complex data types, "will still be ahead of Oracle8 in terms of architectural elegance and range of functionality," said James Pickrel, an analyst at Hambrecht & Quist, Inc. in San Francisco.

But Oracle8 should have enough object technology to meet the immediate needs of most Oracle loyalists, he said.

For example, Burlington Coat Factory Warehouse Corp. wants to start moving down the object road but is primarily interested for now in other Oracle8 features, such as database partitioning and improved backup. "It's not like we're an object shop that's crying out for those capabilities," said Michael Prince, chief information officer at the Burlington, N.J., retailer.

Burlington Coat installed the first beta release of Oracle8 this month and is awaiting the second one. Oracle's object promises sound good, Prince said, "but the real question is how good a job they do on this stuff."

TopTier unveils software to access databases via the Internet. Page 53

Visa in court battle over debit-card software

► Trade secrets at issue as employees switch firms

By Robert L. Scheier

VISA U.S.A., INC. and a creditcard transaction processing company are in court battling over whether Visa tried to steal trade secrets by hiring seven information systems professionals from the processing company.

Those trade secrets, claims Milwaukee-based Deluxe Data Systems, Inc. (DDS), include information about software that DDS has been developing for Visa. The software would let the credit-card giant process transactions involving debit cards.

The DDS lawsuit, filed Jan. 17 in Milwaukee County Circuit Court, seeks to permanently block any of the seven employees from helping Visa develop debit-processing software. If Visa had such software inhouse, it could perform the transactions itself without relying on outside providers such as DDS, Visa officials said.

DDS so far has won a temporary restraining order blocking such work. Hearings were held last week on whether to make the order permanent.

Officials at DDS and the company's lawyers weren't available

for comment. Visa officials have said DDS' claims "lack merit." In a counterclaim, Visa charged that DDS had threatened to sue several employees who said they were leaving to join Visa. Visa also charged that DDS had failed to supply all the software and services it had promised to Visa, although Visa has paid DDS \$6.5 million for the work.

Visa claims that a software licensing agreement between it and DDS gives Visa the right to use DDS' Advantage software to offer debit-processing services.

"Visa had viewed that licensing agreement as an alliance with [DDS] that would provide Visa's member financial institutions with enhanced processing capability for Visa check cards and other debit-processing services," said a Visa spokesman.

That agreement, by letting either Visa or DDS use Advantage to offer debit-processing capabilities to the market, would provide "financial institutions with two strong processing alternatives," the spokesman said. "We are disappointed that [DDS] has taken this action, which may impede both Visa and [DDS] from achieving that goal."

Web site reviews: What's the best airline online?

Way-cool technology alone isn't enough to make a first-class commercial Web site. The sites that soar above the rest make it easy for customers to do business online. Among airlines, at least, the best sites aren't always from the biggest companies, as *Computerworld* found in the first of a new series of Web site reviews.

The Internet, page 72





FLEXIBILITY NEEDED: Guy Hollingbury wants flexibility in Web query tools. Software, page 53

GETTING THERE: Videoconferencing is snazzier but not top-notch yet. Buyer's Guide, page 81

BROAD BRUSH: New jobs will evolve in response to IT, Terry Winograd says. In Depth, page 85

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Clone makers hunger for PowerBook licenses

By Lisa Picarille and Mindy Blodgett

AS APPLE COMPUTER, INC. tries to jump-start a financial turnaround by selling a new line of PowerBook portables, the company may face increased competition from its own licensees.

Although Apple has yet to grant a license to make Mac OS-based portables to any of its current Mac OS licensees, sources said Motorola Computer Group in Tempe, Ariz., and Power Computing Corp. in Round Rock, Texas, are champing at the bit to become the first to offer users Mac OS-clone note-books.

Meanwhile, Vertegri Research Corp. in Vancouver, British Columbia, last week said it would deliver in April the first fully licensed Macintosh portable using a Motorola motherboard. Vertegri's first models will use a its lucrative PowerBook line to languish in the past year — at a time when demand for portables skyrocketed.

MARKET MUSCLE

Timothy Schmidt, an analyst at Encore Consulting Group, Inc. in Longwood, Fla., said if Apple would license the Mac OS for laptops, "it would be a smart move for Apple ... you are expanding the market multiple times."

Motorola reportedly is closer than Power Computing to becoming an official licensee from Apple.

Sources close to Motorola and Apple said the two are hammering out a licensing agreement. A deal would give Motorola its first entry into the notebook field.

Motorola couldn't be reached for comment.

If Motorola gets a licensing agreement, it will enter an unfa-

WHERE APPLE FELL IN Q4 1996 Laptop rank Vendor Laptop shipments 1 Toshiba 335,000 2 IBM 215,000 3 Compaq 190,000 10 Apple 35,000

Source: International Data Corp., Framingham, Mass.

200-MHz PowerPC 604E chip and cost between \$4,987 and \$6,973.

Vertegri was able to make the portables because Apple granted two vendors — Motorola and IBM — permission to sublicense Macintosh-compatible motherboards to other vendors.

MORE CHOICES

The activities mean better selection and potentially lower prices for laptop users seeking Macintosh-compatible models.

Paul D. Camp III, vice president of information systems at Avis, Inc. in Richmond, Va., said he would welcome more choices among Macintosh-compatible notebooks.

"I think that other vendors might be able to offer a sort of stripped-down version for much cheaper than Apple," Camp said.

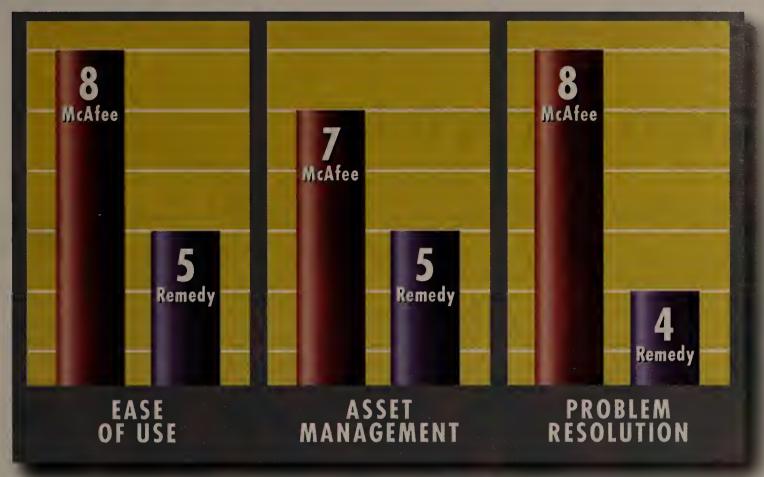
Industry watchers said Apple has been hesitant to grant notebook licenses because it allowed miliar market, said Tim Bajarin, an analyst at Creative Strategies, Inc. in San Jose, Calif.

"[Motorola doesn't] understand how to sell hardware like laptops effectively," Bajarin said. "To succeed in the cutthroat laptop world, you have to be a good marketer."

Correction

Due to a reporting error, the chart in "Internet funds off to quiet start" [CW, Nov. 4], incorrectly stated the performance of the WWW Internet Fund and NetNet Fund. They should have shown 5.2% and 28.6% growth, respectively. Also, due to an editing error, the uniform resource locator for the Munder Capital Management NetNet Fund was incorrectly listed. The address is netnet.munder.com.

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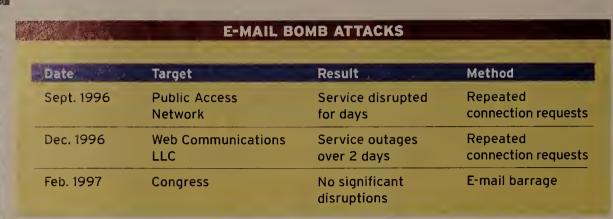
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E-mail attacks can clog systems

► Security expert warns of Internet vulnerability

INTERNET

SECURITY

By Sharon Machlis New York

AN "E-MAIL BOMB" attack on Congress that sent hundreds of threatening messages around Capitol Hill this month turned out to be little more than a nuisance.

But a speaker last week at the International Banking & Information Security Conference here warned that the Internet is

inherently vulnerable to hackers who bring

down systems by bombarding them with so much data that legitimate transactions grind to a halt.

"We do not know how to defend against this," said Winn Schwartau, president of Interpact, Inc., a consulting firm in Seminole, Fla., and author of Information Warfare: Chaos on the Electronic Superhighway. "Surviving denial of service on the Internet is becoming increasingly crucial."

"This is a worrisome concern," said Dan Schutzer, vice president and director of advanced technology at Citibank in New York.

Schwartau outlined a potential defense that combines detection modules, dynamic reaction tools and an "alternative control channel" to go around a clogged TCP/IP connection that is under attack. A rudimentary prototype based on this theory may possibly be ready for testing in six to nine months, he said.

Meanwhile, hacker sites on the World Wide

Web offer anonymous mail bombing services — just enter the site you want attacked and how many messages you want sent there — as well as the "Ping O' Death Page," which details the vulnerabilities of various operating systems, Schwartau said.

The Internet is susceptible to various data-flood attacks because information and control are on the same channel, Schwartau said. He suggested using "smart" detection modules that recognize if too many electronic-mail messages or

pings are coming in, reaction modules that set filtering based on activity being detected and an alternative channel between customers and their service providers (perhaps dial-up cellular modems) to deal with an

DAMAGE CONTROL

The recent E-mail threats in Washington claimed that a group of cyberpunks would wipe out all files on the congressional computer systems. In fact, no systems were breached, and no damage was done, said David Sandretti, communications director for Sen. Barbara Boxer (D-Calif.). Boxer's office received more than 200 threatening messages during Presidents Day weekend.

The message volume didn't cause any problems, Sandretti said. But if there had been hundreds of thousands of such messages instead of merely hundreds, the system could have been clogged.

"That is something we're concerned about," Sandretti said. "It's unclear what we can do at this point except continue to be vigilant."

Cabletron to rev up switch

By Bob Wallace

CABLETRON SYSTEMS, INC. this week will unveil a five-slot SmartSwitch that delivers the features and performance of its highest-end data center switch in a smaller and less expensive system, *Computerworld* has learned.

Users will get high-performance (more than 2 million packet/sec.), high-density LAN switching (120 switched Ethernet ports) and Cabletron's SecureFast virtual networking, all for less than \$330 per port, said sources briefed by the vendor.

The SmartSwitch was designed to stave off attacks from Cisco Systems, Inc.'s Catalyst 5000 switch, analysts said. It is targeted at Cabletron's installed base of 100,000 midrange MMAC hub users who want to move to high-speed LAN switching but can't afford the MMAC-Plus data center switch.

Sources said final pricing hasn't been set, but the Smart-Switch will cost less than the Catalyst 5000. And it is far more powerful, they said — a 3.2G bit/sec. backplane compared with the Catalyst 5000's 1.2G bit/sec. backplane.

"This sounds like a switch we could use when we move engineering departments off-site," said Marc Sayer, a senior network systems engineer at printing-press maker Heidelberg

Harris, Inc. in Dover, N.H.

"There's definitely a market for this product, since users have situations where they want the benefits of a high-end switch but want something that's less expensive," said Phil Thorson, a senior systems analyst at St. Cloud State University in St. Cloud, Minn.

CABLETRON'S SMARTSWITCH

Chassis: Five slots

Backplane: 3.2G bit/sec.

Processing power: More than 2 million packets per second

Interface cards: 24 switched Ethernet and two switched Fast Ethernet ports, or 24 switched Ethernet and one 155M bit/sec. ATM ports

Price: Less than \$330 per port

TWO INTERFACES

The SmartSwitch is available with at least two interface cards. One card has 24 switched Ethernet ports and two switched Fast Ethernet ports. Another has 24 switched Ethernet ports and at least one 155M bit/sec. Asynchronous Transfer Mode (ATM) port, sources said.

A fully configured system can support 120 switched Ethernet ports and 10 switched Fast Ethernet ports. The Catalyst 5000 can support a maximum of 96 switched Ethernet ports.

Cabletron plans to announce additional interface cards this summer and toward the end of the year, according to sources. The internetworking giant also plans to gradually scale up the new system's 3.2G bit/sec. backplane by a factor of three, sources said.

A key feature supported on the SmartSwitch is Cabletron's SecureFast Virtual Networking. It allows network administrators to set policies or privileges that remain the same for end users regardless of where they plug in to the network.

Cabletron officials confirmed their plans to make a major switching announcement this week but wouldn't provide details.

Digital chip pumps up midrange AlphaServer lines

By Jaikumar Vijayan

DIGITAL EQUIPMENT CORP., fighting sluggish sales, last week boosted its midrange AlphaServer line with a faster processor and more expandability.

The Maynard, Mass.-based company added its high-end 64-bit, 466-MHz Alpha chip to the midrange AlphaServer 4000 and 4100 lines. The company also introduced a 64-bit Peripheral Component Interconnect I/O expansion option that lets users double the I/O capacity and bandwidth of AlphaServer 4000 models, Digital officials said.

The new capabilities boost system speed and increase system throughput, analysts said.

This is Digital's second major

Alpha-related announcement in less than three months. In one of the industry's biggest pricing moves, Digital rolled back prices by up to 46% across the entire AlphaServer line in December.

| 64-BIT AL SYSTEM | PHA S | |
|---------------------|----------|--|
| Alpha revenue | | |
| 1993 | \$300M | |
| 1994 | \$1.7B | |
| 1995 | \$3.2B | |
| 1996 | \$4.8B | |
| 1997* | \$5.8B | |
| *Projected | | |

Source: Annex Research, Phoenix

Both announcements are being perceived as increasingly urgent attempts by Digital to reenergize suddenly slowing Alpha server sales. After growing at a fast clip for nearly three years (see chart), Digital's Alpha revenue has slowed somewhat in the past few months.

In fact, revenue from Alpha sales in the last quarter grew by just 1% over the same period in the previous year.

Capabilities such as Very Large Memory — a top-end server can support up to 28G bytes of RAM — have made the systems popular in the database and online transaction processing markets. The servers support Windows NT, Open VMS and Unix.

"Overall, Alpha servers as a technology are top of the line," said Bob Djurdjevic, editor of the "Annex Report," a newsletter in Phoenix. "But increasingly, corporations have had to balance that fact with Digital's dropping image" as a top-tier vendor, he said.

"We are getting increasingly wary about Digital," agreed Fernando Yson, systems manager at Cost Care, Inc. in Huntington Beach, Calif.

"On paper, at least, they are far ahead of the competition inperformance, but they're no longer considered a top-tier vendor. And that is a major stumbling block for us," he said, as Digital's Unix is a low priority for application developers.

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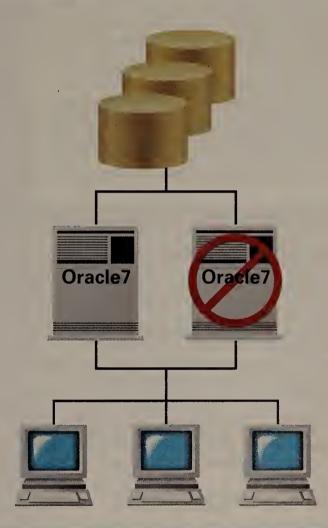
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Security flaws force Microsoft to get Active

Dangers of rogue ActiveX components have developers fearing component technology

By Sharon Gaudin

MICROSOFT LAST week moved to allay developers' fears after a group of German hackers built a rogue ActiveX component that reportedly can steal money from unsuspecting users' bank accounts

Microsoft Corp. posted a new section on its World Wide Web site (www.microsoft.com/ security) to answer developers' questions about how to safely handle components. The vendor sent out a similarly focused letter from a top executive to members of the Internet Explorer community.

Those efforts came a few weeks after Computer Chaos Club, a hackers' organization in Hamburg, Germany, demonstrated an ActiveX component designed to invisibly download onto client machines while users were viewing a Web page using Microsoft's Internet Explorer 3.1.

The component runs automatically and could transfer money into the hackers' accounts from the accounts of anyone who used Intuit, Inc.'s Quicken financial software to pay their bills electronically.

The Chaos Club demonstration jostled the sleeping beast of component security and reminded users about the dangers



"I don't think [Microsoft's Authenticode] is robust enough to be meaningful." of downloading hostile components that can breach the security of corporate networks.

"You've got to be careful," said Patrick Connolly, president of InvestorsEdge, a San Francisco-based online investment firm. "What's so cool about ActiveX is that it can do so much. It's really, really powerful. So you can build cool

applications, or it can trash your whole system. Power goes both ways."

ActiveX components are small Microsoft programs that

can be downloaded off the Internet and run within a Web browser. Hackers have focused much of their attention on ActiveX — rather than on Sun Microsystems, Inc.'s Java — because ActiveX components have access to a computer's operating system and Java applets don't. That gives ActiveX much more power to build and to destroy.

MAJOR DAMAGE

Late last summer, Microsoft announced it was working to tighten ActiveX security after a developer demonstrated a hostile component that could shut down a computer. A well-built hostile component could reformat a computer's hard drive or start a video camera program.

Tom Johnston, a group prod-

uct manager at Microsoft, said the authentication coding built in to Internet Explorer wouldn't have allowed users to download the rogue Chaos Club component. Microsoft's Authenticode requires that a component be signed by a registered developer before it can be downloaded. The developer in the Chaos Club isn't registered, Johnston said, so the component wouldn't have been accepted into the browser.

But Frank Manci, a network technical manager at Colonial Savings F.A., a mortgage loan company in Fort Worth, Texas, said he doesn't trust Authenticode to keep out a hacker who is intent on getting in.

"These hackers are top-notch, unfortunately," Manci said. He added that someone could create a false identity under which to register. "No, I don't think [Authenticode] is robust enough to be meaningful. There are people who devote their whole lives to making problems."

SHORTS

Sun Java kit piques Microsoft

Microsoft Corp. was in a lather last week over the latest release of Sun Microsystems, Inc.'s Java Development Kit, which added an interface specification for developers. Sun has asked its licensees, including Microsoft, IBM, Hewlett-Packard Co. and Apple Computer, Inc., to keep their current implementations but add the new interface. Microsoft, which has its own version of the interface, complained that Sun's move disenfranchises Windows users. Sun officials responded that Microsoft is the only vendor complaining and that the impact on corporate developers is limited. They also said reports about Microsoft suing over the dispute are incorrect.

Teens crack Air Force system

Three high school students in Croatia recently gained access to an unclassified computer network at Anderson Air Force Base in Guam, confirmed U.S. Air Force Capt. Keri Humphrey last week. The break-in came to light in the Croatian newspaper *Vecernji List*, which quoted the youths as claiming to have tapped in to classified information. But Humphrey said no classified systems were involved and damage "isn't significant."

Borland lays off 300

Borland International, Inc. in Scotts Valley, Calif., last week announced a restructuring move that entails laying off 30% of its global workforce, or 300 employees. The move is intended to return the beleaguered company to profitability by next year. Delbert Yocum, the company's recently appointed CEO and chairman, said the restructuring is expected to save the company \$60 million annually.

Banks eye outsourcing

The Federal Reserve Board last week approved rules that will make it easier for banks to offer new products and speed up mergers. Under the new rules, scheduled to take effect April 21, up to 30% of a bank holding company's total revenue can come from nonfinancial data processing. As a result of the rules, analysts expect banks to offer outsourcing services for noncore operations, such as accounts-payable processing, to their corporate customers.

HP profits rise 15%

Hewlett-Packard Co. last week exceeded Wall Street forecasts in announcing profit of \$912 million on revenue of \$10.3 billion for the quarter ended Jan. 31. That was up 15% over the earnings of \$790 million on revenue of \$9.3 billion in the same period a year earlier. HP officials also said the company would acquire the networking business unit of Symantec Corp. The deal, valued at \$30 million, will let HP expand its OpenView enterprise management framework to workgroups.

CompuServe posts loss

CompuServe Corp. reported a loss of \$14.2 million for its most recent fiscal quarter. Also, Robert J. Massey has stepped down as president and CEO. Massey, 51, held the top spot at CompuServe for less than two years. He said he was leaving the company to pursue other interests. CompuServe also reported it lost 100,000 members during the quarter, putting membership at just less than 2.9 million.

Centennial seeks turnaround

Centennial Technologies, Inc., a Billerica, Mass.-based maker of memory cards, hired a turnaround specialist last week to help it recover from its financial woes. CEO Emanuel Pinez was fired after the board of directors uncovered questionable accounting records. The Federal Bureau of Investigation later arrested Pinez on charges of insider trading and manipulating financial records. Centennial stock plunged and may be yanked off the New York Stock Exchange. Centennial is expected to restate its results for fiscal 1996 and half of 1997.

Losses mount at SSA

System Software Associates, Inc., a Chicago-based client/server software vendor, posted a net loss of \$4.4 million in its first quarter ended Jan. 31, compared with a loss of \$400,000 in the same quarter the previous year. Company officials blamed the loss on a \$3 million hike in research and development and other increases in spending. Revenue was \$92.2 million, up 20.4% from \$76.6 million a year earlier.

Open Market buys Folio

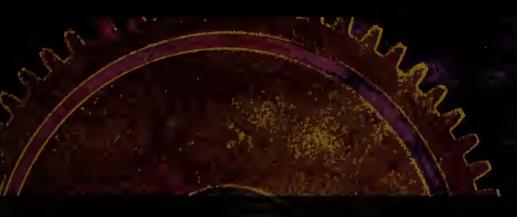
Open Market, Inc. in Cambridge, Mass., last week said it plans to buy Folio Corp. for \$45 million in equity and cash. Folio makes electronic information-publishing software. Open Market makes software to govern transactions on the Internet, such as sales, checking documents in to and out of databases and controlling log-ins to secure World Wide Web sites. Folio is owned by Reed Elsevier PLC in London.

Lotus to ship SmartSuite 97

Lotus Development Corp. is expected this week to ship an updated version of its productivity suite. SmartSuite 97 for Windows 95 and Windows NT 4.0 features new tools for collaboration, enhanced Internet facilities and, finally, a 32-bit version of Lotus' 1-2-3 spreadsheet application. The suite will ship with Microsoft's Internet Explorer and Netscape Communications Corp.'s Navigator. The price will be \$399.

SHORT TAKES German software giant SAP AG said last week it is integrating its R/3 application package with design, procurement and engineering software from Aspect Development, Inc. in Mountain View, Calif. ... Digital Equipment Corp. last week announced it is setting up an independent company called Tracepoint Technology, Inc. to produce software development tools for Windows 95 and Windows NT operating systems.

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Cheyenne rides to Windows NT's rescue

By Patrick Dryden

THE CHEYENNE DIVISION of Computer Associates International, Inc. last week struck an alliance with Microsoft Corp. to provide the first disaster recovery disk and directory manager for the Windows NT operating system.

Now, managers of Windows NT systems can get a free "rescue disk" to help them reduce the steps required to restore a failed server or workstation.

"Bootable rescue disks" aren't new. But this one is significant because it should become "the normal way to recover NT systems in the future," and it links with an enterprise manager, said Michael Peterson, president of Strategic Research Corp. in Santa Barbara, Calif.

Users also can look forward to a management tool that promises to ease daily administration tasks for organizations that implement the Active Directory in Windows NT 5.0, which is due in the second half of this year.

CA officials said they will link both products to their Unicenter systems management suite so central managers can extend their reach across an enterprise to maintain remote Windows NT systems and users.

BIG HELP

"This is the first NT recovery disk I've seen, and I want it so I can quickly restore backup tapes for 50 servers in my area," said beta tester Alan Young, a principal network engineer at Science Applications International Corp. in San Diego. The consulting service was contracted by a federal agency.

Cheyenne Disaster Recovery for Windows NT is a disk set that stores essential hardware and operating system configuration information and provides "wizard" programs to automate all the steps required for basic recovery.

This year Windows NT will take over as the most popular corporate desktop operating system, according to a survey of 250 client/server implementers by **Business Research Group in** Newton, Mass.

Then a server technician or a station user can restore applications and data from backup tapes — those created by Cheyenne's ARCserve or those created by any vendor's software that writes to the Microsoft Tape Format (MTF).

However, the tool is limited for other products, Young cautioned. ARCserve automatically restores user rights to NT File System volumes, but recovery from MTF products requires manual steps, he

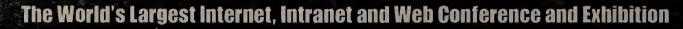
This recovery software is free through April 1; after that it will cost \$395.

CA's Unicenter also will let central operators manage directory structures for Windows NT and Novell, Inc. NetWare networks through upcoming versions of the DS Standard tool. The Cheyenne division, located in Lake Success, N.Y., recently took over this technology by acquiring Preferred Systems, Inc. in Stamford, Conn.

DS Standard lets managers manipulate the structure and user privileges of Novell Directory Services in NetWare 4.x off-line, so they can automate changes and implement them quickly.

For example, at Northeast Utilities, DS Standard helped managers model their directory structure when they first migrated to NetWare 4.0 to make sure it worked right, said Brice Burtch, a senior networking administrator at the utility in Berlin, Conn.

"Now we use it to work off-line and make changes in an hour that would take a week to implement for 3,300 users," Burtch said.



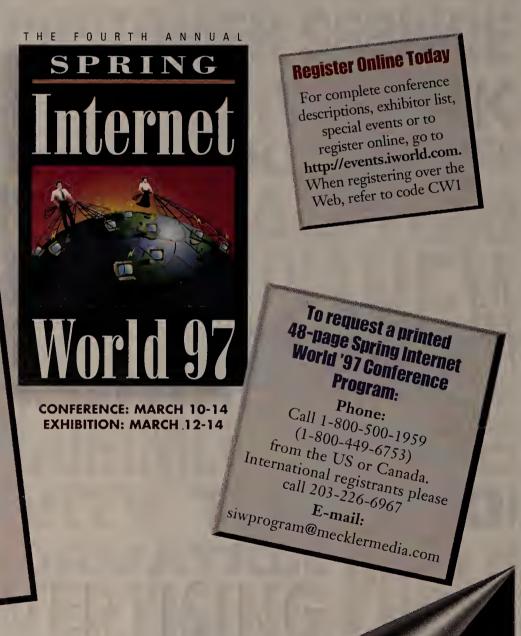
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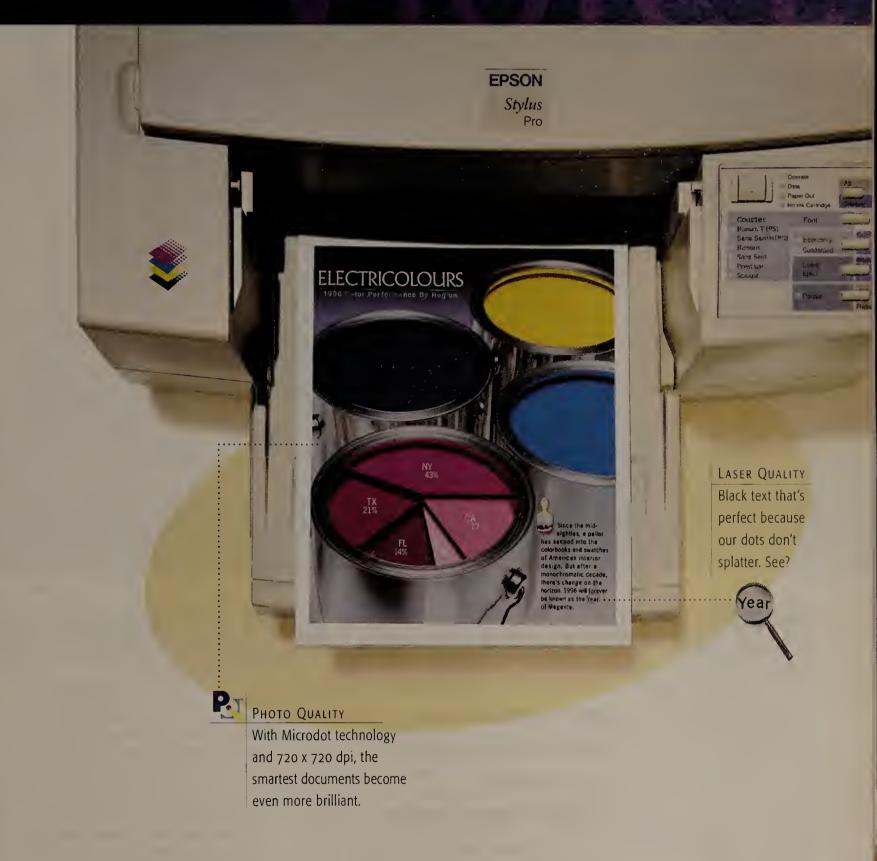
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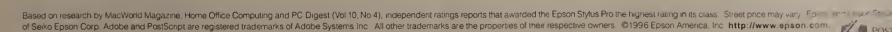
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Newbridge lays out path for UB users

▶ Vendor plans better routing, loses Cisco deal

By Bob Wallace

FRESH FROM its acquisition of UB Networks, Inc., Newbridge Networks, Inc. next month will detail plans to offer users greatly expanded network management coverage and advanced routing features.

But the hordes of new Newbridge users will lose

something in return: Cisco Systems, Inc., which users and analysts say now views Newbridge as a competitive threat, is canceling a key resale deal with UB, *Computerworld* has learned. Cisco officials didn't comment.

Newbridge plans to extend UB's popular NetDirector World Wide Web-based network management tool to cover UB's lowend stackable hubs as well as most, if not all, Newbridge networking products.

Herndon, Va.-based Newbridge also plans to soup up the performance of UB's high-end GeoLAN 500 hub by gradually adding routing functionality to the box, thus making it a Layer 3 switch.

"Extending NetDirector to lower-level UB hubs and New-

bridge devices is important because it means we only need one network management systidge tem to handle both product will lines," said Virgil Palmer, manager of telecommunications research and engineering at Air Products and Chemicals, Inc. in Allentown, Pa., a longtime UB customer.

STRATEGIES

"That saves us a great deal in terms

of buying another package as well as in labor and training. Our technicians don't have to learn a second system," Palmer said.

PLAN FOR THE FUTURE

UB users said they welcomed Newbridge's plan to add Layer 3 switching functionality to the GeoLAN 500.

"We're quite pleased and well-served by our router infrastructure today, but it's important to know that Newbridge has that intention when it comes to planning the future of our network," said Richard Wells, director at Geisinger Health System in Danville, Pa., an operator of two hospitals and 70 medical clinics statewide.

Other UB users agreed.

"Layer 3 switching is where the LAN switching industry and users — are headed," said Tom Shoop, director of systems engineering at Western Union Corp. in Paramus, N.J. "This is a very pleasing and positive approach for Newbridge."

CISCO CONCERN

But UB users expressed concern about Cisco's decision to stop UB from reselling products that use its Internetwork Operating Software (IOS) router code.

Router market leader Cisco made the move because it views Newbridge as a rival following its UB purchase.

The decision came just several months after Cisco stopped licensing IOS to Cabletron Systems, Inc.

Because of a Cisco decision, UB won't be able to resell products that use IOS, such as plugin hub modules and stand-alone routers.

UB users can choose to buy from Cisco or migrate to Newbridge's routing system.

"It's not pleasant for us, but we're really not left totally out in the cold," Wells said.

"What this means is that now I'll have to deal with two vendors instead of one for my inter-

NEWBRIDGE PLANS FOR UB

The good news:

- Layer 3 switching support due for UB GeoLAN 500
- NetDirector, a Webbased management system, will be expanded to cover UB
- Improved support

The bad news:

Cisco stops licensing its router software for UB

networking needs, which is more difficult," he said.

Cisco's decision raises questions about its longtime efforts to establish IOS as the de facto router software standard.

"Cisco is really painting IOS into a corner by yanking licenses from the vendors left that use it substantially," said John Morency, a principal at The Registry, Inc., a consulting and research firm in Newton, Mass.

"It's not a de facto standard," Morency said.

More layoffs imminent at austere Apple

By Lisa Picarille

ANOTHER TOP executive resigned from Apple Computer, Inc. as the company last week steeled itself for March layoffs that analysts and insiders said could cut Apple's workforce by as much as 30% to 40%.

Apple officials declined to comment on the scope of layoffs, noting that they were evaluating all positions and that layoffs should be announced next month.

The company has 13,398 employees. Apple laid off more than 1,800 people last year.

"Are cuts of more than 30% adequate? Yes, but only assuming that Apple can stabilize revenues," said Charlie Wolf, an analyst at CS First Boston Corp. in New York.

"Apple is back on the hardware side with a slew of product announcements, but they have

to convince people to buy Macs and that the viability of the company and the platform are no longer issues," Wolf said.

Apple lost more than \$800 million in fiscal 1996.

David Wu, an

analyst at The Chicago Corp., another investment banking firm in New York, agreed. "They need to get back customer confidence. The rest is just bullshit," he said.

OPERATING SYSTEMS

Motorola snubs NT, picks BeOS for its Mac clones

By Lisa Picarille

JUST TWO MONTHS after deciding not to bundle Windows NT on its PowerPC-based systems, Motorola Computer Group last week said it will instead ship its line of Macintosh-compatible systems with Be, Inc.'s BeOS.

During the past year, industry watchers predicted that NT running on the PowerPC could save of the PowerPC platform, which is facing an uphill battle against machines that use chips from Intel Corp.

Flying in the face of conventional wisdom, Motorola said it is betting on an alternative to NT on the PowerPC.

Motorola, which last week demonstrated the BeOS operating system running on its Star-Max systems at Macworld Expo in Japan, will continue to preload its systems with the Mac OS.

But the company also plans to ship the BeOS with all StarMax

3000 and 4000 systems.

The BeOS will be shipped as a separate CD-ROM, which will give users an alternative operating system, according to Motorola officials.

"With the BeOS running on more clones, I would be very much interested in looking at [them]" – David Champney,

Baltimore Symphony Orchestra

Together with IBM, Motorola earlier announced it would stop developing new PowerPC machines that use Microsoft Corp.'s rival NT operating system. In turn, Microsoft said it will drop development of NT for the PowerPC chip.

While the vendors play tit for tat, Motorola's embrace of Be has some Macintosh users pleased.

One user at an almost all-Macintosh site said the more choices the better.

He said having the BeOS available on Macintosh clones gives him another reason to

more carefully consider purchasing one.

"The Mac OS is old and needs replacing," said David Champney, computer systems manager at the Baltimore Symphony Orchestra, which has more than 65 Apple Computer, Inc. Macin-

"With the BeOS running on more clones, I would be very much interested in looking at the clones but would have to consider compatibility for existing software applications, because we are heavily invested in some [of them]," Champney

Charlie Wolf, an analyst at CS First Boston Corp., a market re-

search firm in New York, called the bundling deal with Motorola a coup for Be.

But Wolf said until there is more software running on the BeOS, the impact on users will be minimal.

Several major software developers, including Adobe Systems, Inc. and Macromedia, Inc., have announced plans to develop BeOS versions of their popular applications.

To address those and other concerns, Be last month announced it would halt development on its proprietary BeBox hardware to wholly concentrate on its BeOS.

Be in November announced a deal with Power Computing Corp. to bundle the BeOS on all its Macintosh clones.

Power Computing has an exclusive bundling deal for the Be-OS through the end of the first quarter.

After that, Motorola will begin bundling the BeOS.

KEEP CUTTING

The layoffs are a key component of Apple's plan to cut operating expenses by 20% to reach a break-even point of \$8 billion, down from previous break-even projections of \$9 billion. Apple's 1995 revenue was more than \$11 billion.

But several financial analysts said the break-even point should be even lower. "I think they're shooting for \$7 billion to \$7.5 billion. That's a more realistic number," Wu said.

In the latest in a string of departures, Marco Landi last week announced he is leaving Apple. Landi was appointed as vice president of worldwide sales in the latest reshuffling.

Sources close to Apple said Landi was unhappy about his new responsibilities, which were perceived by many as a demotion from his previous duties as chief operating officer.



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Benefits of global telecom reform are still a long distance away

By Kim Girard

GLOBAL telecommunications competition will change international networking forever, but telecommunications managers shouldn't expect to reap the benefits of better service and lower bills for at least several years, analysts said.

A year after the U.S. enacted landmark legislation that opens local and long-distance markets to competition, 68 countries that represent 90% of the \$600 billion worldwide telecommunications market have agreed to open their markets as well, ending state-owned telephone monopolies by 2000.

Lifting restrictions overseas should drive down prices and enhance value-added services such as three-way conferencing that many users abroad currently can't use, said Ronald West, president of the Communications Managers Association, a user group in Morristown, N.J.

In fact, telecommunications analysts predicted open global competition could eventually reduce long-distance costs by as much as 80%.

BIG IMPACT

"I think [the agreement] will impact us quite a bit," said David Havu, telecommunications coordinator at Cole-Haan Corp. in Yarmouth, Maine. Havu said the shoe manufacturer has held off on building an international network because of the cost. He said the company now spends \$12 to \$15 on a 10-minute call to India and \$2,000 to \$3,000 each month to send faxes to overseas offices. He said he hopes those costs will plummet.

But West said the reforms aren't going to come about overnight.

"If we thought it was difficult to get the domestic carriers to work together, it's going to be 10 times more difficult to get countries and companies with different laws and cultures to work together," said Jeffrey Kagan, president of Kagan Telecom Associates in Atlanta.

The pact will particularly benefit those that transact business in Asia and Latin America, where infrastructure lags, data services can be difficult to find and telephone lines are sometimes viewed as luxuries rather than necessities. Services such as frame relay are often unavailable, which forces network managers to rely on the ubiquitous — but slower — X.25 packet-switching technology.

HEARD 'ROUND THE WORLD

What to expect from the global telecomunications market over the next five years:

- Better-managed end-to-end network services
- Less expensive international calls and data services
- More providers to choose from
- More services in Asia, Latin America and other underdeveloped areas

James Harris, telecommunications director at Warner-Lambert Co. in Morris Plains, N.J., said any opportunity online providers have to expand will help save money. Harris said the pharmaceutical firm finds it particularly difficult to do business in Thailand, Pakistan and India.

NODELESS

"Because of regulations, it's hard for CompuServe [Corp.], Infonet Services Corp. and other companies to install nodes in these countries. So our affiliates dial in [to our network], and the cost is very high," Harris said.

Dan Taylor, a senior analyst at Aberdeen Group, Inc. in Boston, said he expects many smaller and more-nimble network providers and carriers to go international, which would create competition that will lower prices and create better service guarantees.

For network managers, those small companies — though not necessarily as reliable — will create alternatives to giants such as AT&T Corp., MCI Communications Corp. and Sprint Corp., which are all saddled with legacy systems that can slow down ordering and provisioning of services, Taylor said.

"Tell [the major carriers that] another telco can provision a TI in 10 minutes, and that's what they'll sweat about," he said.

• E-mail recipients get URLs of large, complex files

Web used to distribute documents

By Mitch Wagner

TUMBLEWEED SOFTWARE Corp. next month plans to unveil software that exploits Internet E-mail and the World Wide Web for reliable distribution of big documents.

The Posta software is used for sending large, complex documents that are now sent by fax, overnight delivery, mail or courier, said Jeff Smith, CEO of Tumbleweed in Redwood City, Calif. Examples include high-priced industry newsletters and legal documents.

Ordinary electronic mail is often impractical for sending those documents, because the electronic formatting commands make file sizes very large, and data transmissions are often

Using Posta, the recipient gets an E-mail message that contains a uniform resource locator (URL) pointing to the document being distributed. If there are multiple—recipients, each one gets a different URL to retrieve the document, which lets the Posta server track

when each person looked at it.

One alternative to Posta would be to post the document to the Web manually and send E-mail notification. But Posta software automates both chores, Smith said.

Posta is pretty handy, said beta user Chris Cheney, a product manager at Merrill Corp., a legal and financial printer in St. Paul, Minn. The company plans to use Posta to distribute electronic copies of documents to its clients for proofreading prior to final printing.

The documents are currently sent by mail, overnight delivery or courier on diskettes — and

the files often span multiple diskettes.

"This would give us another option to offer our clients and shorten proofreading cycles," Cheney said.

James Loadholt, an Internet services specialist at Bowne Business Communications in Secaucus, N.J., is testing Posta for similar purposes. He said the product could save his company and its clients considerable time and money, but he also pointed out some limitations that chafe.

The Web addresses Posta uses are long and unwieldy and contain many characters

that appear random to human eyes, Loadholt said. That means the only way to distribute those addresses is by E-mail, because they are too cumbersome to type in manually.

The software will go into a free public beta release on March 10 and become generally available in April. Posta will cost \$189 per user. Each user can send documents to an unlimited number of recipients.

Sun tweaks Java, but faster version in works

By Sharon Gaudin

SUN MICROSYSTEMS, Inc. is offering a minor boost to its Java Development Kit now, but it promises significant speed increases in the near future.

Sun released Version I.I of its Java Development Kit last week, tweaking its Abstract Window Toolkit and adding international language support and the ability to create JavaBeans — reusable, cross-platform chunks of software that fit Sun's Java-based architecture.

Users and analysts called the release an incremental update that provides some fixes and enhancements but doesn't offer a significant jump in performance. Sun promised that technology from its purchase last week of LongView Technologies LLC, also known as Animorphic Systems, will translate into significant increases in Java speed.

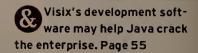
Animorphic, in Palo Alto, Calif., a seven-person operation without a commercial product, specialized in interpreted language performance.

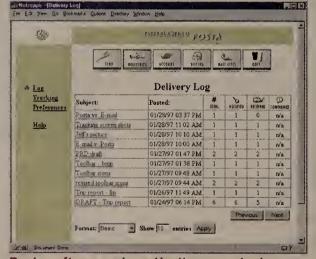
Sun officials didn't say how the company would use Animorphic's technology, but they said it would add it to the Java Development Kit and JavaBeans to boost Java's speed. Details are expected at Sun's JavaOne conference in April.

"Obviously, the speedier the Java programs execute, the better it will be," said Stephen Blaha, president of Bali Software Ltd., a development firm in Derry, N.H. "They keep promising us that Java will get faster and faster, reaching the performance characteristics of C++ or C. If it does, you'd see massive amounts of programming done in Java, because it's much easier to use."

Blaha said Sun made some much-needed improvements in the latest release of its Java Development Kit. He said the addition of pop-up menus, support for animation and multimedia functions, and the addition of global language support will make developers' jobs easier.

But he said the Abstract Window Toolkit, a set of onscreen Java components that include buttons, menus and text areas for user interfaces in applications, still has several bugs.





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Project management

CONTINUED FROM PAGE 1

an estimated \$145 billion last year, companies can no longer afford not to heed project management's demands.

"Companies do seem to be learning their lesson," said Jim Johnson, chairman of The Standish Group in Dennis, Mass., which conducted the survey on project failures. "They're beginning to see that experienced project managers produce better projects."

"They're also talking about how and why projects fail, which used to be a real taboo subject," Johnson added.

NCR Corp. is a prime example. Among other things, the company has set up a formal career path for IS project managers, who also are encouraged to earn a graduate degree and certification in the discipline, according to Mela Walker, an Houston-based engagement manager at NCR.

IS OVERKILL

of software functions are never used

19% are rarely used

16% are sometimes used

13% are often used
7% are always used

Base: 360 Fortune 100 companies

Source: The Standish Group International, Inc., Dennis, Mass.

The company has adopted a standard set of project management techniques for IS managers to follow.

Georgia-Pacific Corp. in Atlanta and Norcal Waste Management Systems, Inc. in San Francisco have also standardized project management practices. Both companies train IS staffers in the techniques.

A third trend is the establishment of central project management offices that closely scrutinize requests for changes as a way to guard against overruns.

All three trends contrast sharply with the traditional seat-of-the-pants approach to IS project management, managers said. "In IS, most project managers are programmer/analysts or business analysts who have had no formal education in project management. But we plop on top of them the responsibility to manage projects," said Bill Durbin, information technology director at Norcal.

What many of those analysts lack, he said, are the communications and people skills needed for key tasks such as eliciting exact systems requirements from users.

"Soft skills are talked about the least, but they're probably the most important," he said.

LEADERSHIP QUALITIES

Jennifer Havens, a former project manager at Farmland Industries, Inc. in Kansas City, Mo., uses words such as "fortitude" and "courage" to describe the qualities a project manager needs.

To keep a 15-month, \$7 million integrated supply-chain project on track, Havens began by setting the project deadline.

"May 1 was the drop-dead date, and everything else was backed into it," Havens said. "Users would come to us and say they wanted something, and we'd ask them what they wanted to give up to get it. Sticking to the date is how we managed scope creep."

Bruce Woodland used a similar technique last year to complete a \$10 million electronic-commerce project on time and under budget at PanEnergy Corp. in Houston.

"Whenever someone wanted to add or change something, we'd tell them how long it would take and then ask them how they wanted to deal with it," he recalled.

"The first few times, the users almost took us out behind the Dumpster and hanged us. But when we could match specific functionalities they wanted with the time and dollars they required, we didn't have a prob-

Netscape beta will round out client/server package

► Messaging Server to fill out SuiteSpot suite

By Justin Hibbard

THIS WEEK, Netscape Communications Corp. will release beta versions of its client and server software that complete the package the company has aimed at the enterprise market.

The Mountain View, company will release a beta version of its Messaging Server 3.0 mail server and a second beta of its Communicator client for Windows NT, Windows 95, Windows 3.1, Macintosh and

COMPLETE SUITE

Messaging Server is the last of the nine servers in Netscape's SuiteSpot 3.0 to be released since the company announced the suite last October.

A final version of the entire suite is scheduled to ship by the end of this quarter and will cost \$4,995.

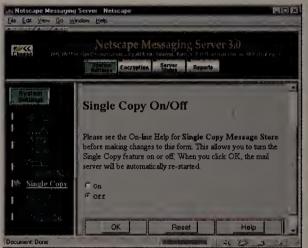
Stand-alone versions of Messaging Server 3.0 will cost \$995.

The product includes support for the Lightweight Directory Access Protocol (LDAP) and for extensions to the Simple Mail Transport Protocol (SMTP) that let receipts and error messages be returned to the sender.

The second Communicator

beta adds several features that were previously announced but weren't implemented in the first release.

These include calendaring, support for Cascading Style Sheets and JavaScript Style Sheets and automatic administration features that let information systems professionals centrally configure and update Communicator clients throughout an organization.



Netscape Messaging Server 3.0 supports LDAP and SMTP delivery notifications

The new releases round out Netscape's bid for the corporate groupware and messaging markets.

Among the companies that have committed to Netscape's new products is US West, Inc.

"One of the reasons we picked the Netscape products, in addition to cost, was the Internet standards [used in the products], so that we can be flexible and adjust as the market changes," said Becky McDonald, man-

ager of messaging and World Wide Web infrastructure at US West in Boulder, Colo.

Netscape has repeatedly pledged that its products will adhere to open standards so that customers can easily replace or integrate Netscape products with those of other vendors.

STANDARDS ISSUES

But Netscape also has repeatedly released products with features

that are still under consideration by standards bodies or are extensions to existing standards.

"How do you differentiate in a world of standards?" asked Joyce Graff, an analyst at Gartner Group, Inc. in Stamford, Conn.

"The new euphemism for proprietary is extensions," Graff said.

She said it is unclear whether some of the features in Messaging Server 3.0, such as

support for LDAP and support for X.509 digital certificates, are truly standards.

The features have been ratified by standards bodies but aren't yet widely supported by other products on the market.

But Netscape's Directory Server supports LDAP, and its Certificate Server issues X.509 digital certificates, which makes those products optimal for use with Netscape Messaging Server 3.0.

MTI's Gladiator enters high-end ring

▶ Open system offers flexible RAID support, simultaneous server access

By Tim Ouellette

THIS WEEK, MTI Technology Corp. will announce a high-end open storage system targeted at data centers that run heavy data loads on Unix and Windows NT systems.

Called Gladiator 3100, the system offers flexible RAID support and host access and is expected to help users maintain high system performance levels.

For example, Cable Systems International (CSI), a copper wire manufacturer in Phoenix, chose Gladiator to maintain uptime and performance as its storage requirements increased, according to Rob Bartlett, a network administrator.

CAPABILITIES

CSI installed six Gladiator systems to maintain the 98.5% uptime required by an around-the-clock manufacturing and computing operation.

Gladiator 3100 features include the following:

■Multiple, simultaneous RAID Levels 0, 1 and 5.

■The ability to have four different host servers access each array module simultaneously.

■The ability to add RAID controllers when capacity increases to keep performance at high speeds. The RAID controllers include write-gathering cache, which reduces the number of storage I/Os that would normally bog down a system.

Analysts said the offering from Anaheim, Calif.-based

MTI will provide some competition — especially on price — for EMC Corp. in Hopkinton, Mass., the leader in the open systems storage market.

For example, a 291Gbyte Gladiator system costs \$298,000. That is less than a comparable EMC system, but the Gladiator lacks some services and software that EMC provides.

Thomas B. Lahive, an analyst at International Data Corp., said EMC and MTI are the growth leaders in this market, which hit \$1.7 billion in sales last year. As a smaller firm, MTI must move more of its business to open systems and keep costs down to stay competitive, he added.

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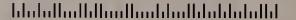
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Health care groups struggle with the Web

► Internet could cut costs, but privacy issues concern doctors

By Thomas Hoffman SAN DIEGO

INFORMATION SYSTEMS managers in health care are having a tough time treating "the killer app."

The World Wide Web offers companies a way to cut costs, but security and other obstacles make it hard for IS managers to take full advantage.

Many are reluctant to make sensitive patient data available over the Internet — or even over a more closed corporate intranet — for fear of breaching patient confidentiality.



L. Allen Dobson (left) uses a thinclient, pen-based tablet to access patient records

For example, a physical therapy unit of Mercy Health Services, an alliance of more than 20 hospitals in Michigan and Iowa, had planned to post unencrypted patient data on the Internet. But one of the company's IS managers caught wind of the plan and warned senior management about the liability risks.

"I'm scared to death" about existing Internet security, said Mary F. Christner, a senior planning consultant at the company's Mercy Information Systems unit in Farmington, Mich. She was one of nearly 15,000 attendees at last week's Healthcare Information and Management Systems Society's annual conference held here.

CONSOLIDATION CRUNCH

Health care mergers have reached a fever pitch, and browser-based technology offers these new partners a chance to link legacy applications quickly via browser-based technologies such as Lotus Development Corp.'s Domino, said Peter H. Gretz, vice president of American Management Systems' health care group in Fairfax, Va.

The problem is that the health care industry's use of information technology is 10 to 15 years behind the banking and manufacturing sectors. As such, most health care groups lack the wide-area networks and Internet architectures necessary to support this kind of integration, said Douglas M. Williams Jr., a partner at Arthur Andersen & Co. in Dallas.

Cabarrus Family Medicine in Concord, N.C., a practice that has 26,000 patients across four clinics, recognized the need

to play catch-up. Until recently, Cabarrus doctors spent up to 40% of their time sifting through paper-based patient records to meet health maintenance organization requirements, said L. Allen

Dobson, director of Cabarrus.

To free up more time for patients, Cabarrus in November began to install a \$250,000 intranet-enabled computerized patient record system using software from HealthPoint G. P. in Durham, N.C.

When the system is completely rolled out in July, 20 physicians and 24 residents will be able to access patient records across the intranet using standard browser technologies.

The system is also cost-effective.

Cabarrus' choice of thin-client, penbased tablets from Epson America, Inc. was 35% to 40% cheaper than installing full-blown PCs or workstations to manage patient data, Dobson said.



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Software funnels voice, fax, E-mail to one mailbox

'Unified messaging' promises convenience, cost savings

By Barb Cole

OCTEL COMMUNICATIONS CORP. last week announced software that delivers voice mail, faxes and E-mail to one mailbox. Users can retrieve their various messages by using a PC or telephone.

"Unified messaging" promises more convenience for end users and lower costs for corporate network managers, but it could clog servers with a flood of voice mail. Milpitas, Calif.-based Octel's Unified Messenger works with Microsoft Corp.'s Exchange messaging server and PC voice cards to answer calls, record and compress messages and hand them off to an Exchange mailbox or a worker's phone.

"I would really like to get all my messages in one place," said Ethan Winkley,

Exchange administrator at Phelps Dodge Tyrone, Inc., a Phoenix-based copper mining company that is moving 7,000 users to Exchange. "I prefer E-mail and don't really want to bother with retrieving voice mail by phone," he said.

Unified messaging is also expected to lower administration costs by allowing companies to maintain one directory for electronic mail and phone extensions within Exchange.

Octel's offering sends voice-mail messages over the corporate wide-area network, thus eliminating long-distance phone charges.

"I'm sure there'll be cost savings because we'll only have one directory to manage, and we're leveraging existing [Exchange] servers," said Bob Jaglowski, senior MIS manager at Harris Semiconductor, a division of Harris Corp. in Melbourne, Fla. The company is piloting the Unified Messenger software as part of its Exchange deployment.

Jaglowski said the main business reason for adopting the technology is that it will let Harris workers worldwide check their E-mail after hours by dialing in from their home phones.

UNIFIED MESSENGER

Benefits:

- One-point access for E-mail and Exchange
- Stores messages in Exchange server
- Shares a directory of users with Exchange

Drawbacks:

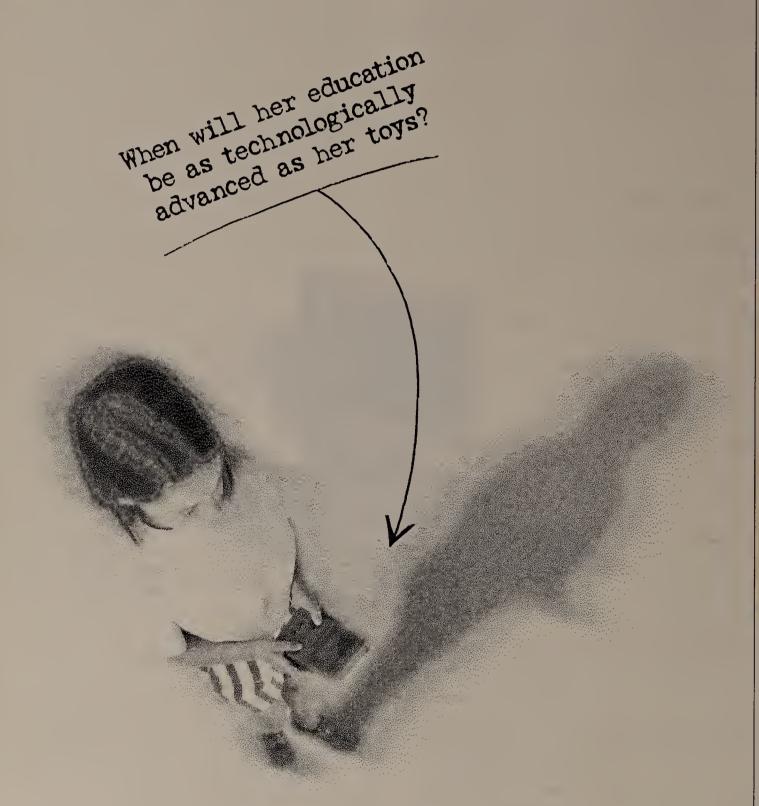
- Limited to Windows NT and Exchange
- Gateway required to work with other voice-mail systems

Octel's principal competitor in the unified messaging market is Lucent Technologies, Inc. in Murray Hill, N.J. Lucent last week announced it is shipping Intuity Message Manager 4,I, an upgrade of its unified messaging software that adds support for several new languages and lets mobile users access messages from a laptop computer. The Intuity offering, which has been shipping for more than a year, works with Lotus Development Corp. Domino messaging servers.

Octel's offering is unique, however, because it stores voice mail within the Exchange message store, said Paul Stockford, an analyst at In-Stat, a market research firm in Scottsdale, Ariz.

Octel's approach appeals to users administratively but has drawbacks. Exchange servers hold a maximum of 16G bytes of messages per server, and that could fill up fast with the addition of voice mail. Voice messages consume about 4K bytes for each second of audio.

Unified Messenger for Exchange will ship in May. It costs about \$200 per user.



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Antivirus software gets shot in the arm

Symantec protection tool blocks access to documents that contain nonapproved macros

By Sharon Machlis

macro viruses these days, it's getting tough for screening software to keep up.

So after years of touting "signature screening" as protection against malicious code, Symantec Corp. is raising the ante. The Cupertino, Calif., company by May I will ship software that lets infor-

mation systems managers block access to files that contain any macro viruses that aren't on a company's approved macro list

The Macro Virus Protection system

will prevent users from opening a document or spreadsheet that contains non-approved macros.

This means users could be barred from opening documents that are electronically mailed from their customers, even if they include benign viruses.

"We are taking a conservative route," said Alex Hoddox, product manager at the Symantec Antivirus Research Center in Cupertino. "Macro viruses are out of control at this point."

INTERNAL GREMLINS

Macro viruses are embedded in documents, spreadsheets and other files. Once accessed, they can create mischief such as changing document templates or replicating and using up systems resources.

The Macro Virus Protection system was inspired partly by Merck & Co., Inc. in Whitehouse Station, N.J.

The company's Chief Information Officer Charles Popper sought to let in only approved macros instead of simply screening out known viruses.

Such a system offers substantially more protection because it allows IS professionals to check each macro virus before they allow it on the system, Popper said. "It's something we find exciting," he said

But the move strikes some users as overkill.

"I don't think we would go that far," said Donald L. Phipps, a senior systems analyst at a California manufacturing company. Phipps presented a paper at the International Virus Prevention Conference last month in Arlington, Va.

GERMINATION PERIOD

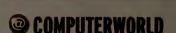
Haddox said the Symantec Antivirus Research Center can develop a virus cure within 24 hours.

But the problem, he said, is to get samples before users are infected.

The first macro virus, Concept, was discovered in August 1995. A year later, there were 42 known macro viruses. This month, researchers had documented 259, Haddox said.

Symantec may develop software that allows access to files in nonapproved macros by disabling the macros, Haddox said.

The initial Macro Virus Protection system will support Norton AntiVirus 2.0 for Windows 95 and Windows NT.



For these and other related links, point your browser at www. computerworld.com/news/970218ATMlinks.html

► McAfee's Virus Info Library: www.mcafee.com/support/ techdocs/vinfo/f_3057.html

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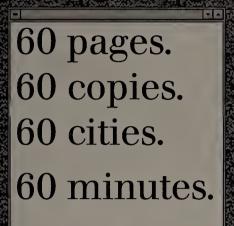
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YEAR 2000

Congress examines date-change progress

By Robert L. Scheier Washington

A CONGRESSIONAL committee today will review the federal government's progress in tackling its year 2000 problems, with many observers skeptical that federal agencies are doing enough to prevent disruption of vital government services.

The Government Management, Information and Technology Subcommittee of the Government Reform Oversight Committee is scheduled to meet today to discuss the latest estimates submitted by federal agencies detailing how much time and money it will take to solve their year 2000 problems.

Earlier this month, federal information systems officials who spoke at the Year 2000 Conference & Expo here indicated that they hope to fix just enough

critical systems to get by, with less-critical systems being left for later repair or even being scrapped.

"I don't think we're going to get it all done," said Judith Draper, project director of year 2000 work at the Social Security Administration. Speaking at the conference, she acknowledged that across the federal government, "testing is going to suffer. We'll have to end up testing until the last minute and then [push the fixed code] into production."

Much of the software used by federal agencies, like that employed elsewhere, uses two-digit year fields. If those systems can't tell the difference between the 20th and 21st centuries, everything from Social Security checks to shipments of supplies to troops in wartime could be snarled.

When some federal agencies expect to be year 2000-compliant

| Agency | Date |
|--|---------------|
| Small Business Administration | December 1998 |
| Department of Education | March 1999 |
| Agency for International Development | July 1999 |
| Department of State | August 1999 |
| Air Force | December 1999 |
| Department of Justice | |
| • Department of Veterans Affairs | |

Source: Office of Management and Budget, Washington

NASA

But most federal agencies don't plan to have their systems fixed and back in production until late 1999, according to a report released earlier this month by the Office of Management and Budget (OMB). That's "cutting it too close" to tackle lastminute problems, said Rep. Tom Davis (R-Va.), who sits on two subcommittees that oversee year 2000 issues.

Money will also be tight because IS managers acknowledge that the \$2.3 billion estimate for year 2000 work they gave to the OMB, and which President

Clinton included in his budget proposal to Congress, will rise. Davis predicted the cost will at least double, adding that Congress is in no mood to allocate more money as it struggles to balance the budget.

TOO LOW

The Information Technology Association of America (ITAA) lauded the OMB for acknowledging the seriousness of the issue but called the cost estimates "incredibly low." According to ITAA President Harris Miller, "Outside experts have estimated the government conversion costs at closer to \$30 billion."

Faced with those challenges, federal IS chiefs are first trying to determine which systems must be fixed and which can be scrapped. "We're seeing this as an opportunity to get rid of systems we don't need," said Maj. Ronald Spear, the U.S. Army's year 2000 project officer. Among the most critical, he said, are logistics and command-and-control systems.

At the Internal Revenue Service, corporate tax systems top the list, said Julia McCreary, technical adviser to the year 2000 project. But she noted that such systems make up 55% of IRS software and more work is needed to zero in on specific crucial systems [CW, Feb. 10].

When speaking about the Social Security Administration, Draper was upbeat. She said the agency is "in very good shape" because it got started on its year 2000 problems earlier than many government agencies. She said she is confident the agency can meet its November 1999 deadline for having its systems repaired, tested and back online.

Washington to move services to cyberspace

▶ Officials say IS investments will improve quality, save money

By Sharon Machlis McLean, Va.

SECURITY DETAILS still have to be worked out, but federal information systems executives have expressed support for plans to push the delivery of many government services — from food stamps to regulatory forms — into cyberspace by 2000.

Vice President Al Gore unveiled those plans — called the Access America report and program — as part of his "reinventing government" initiative.

"It's a very good report. I am very optimistic," said Mary Ellen Condon, director of information management and security at the U.S. Department of Justice. The plan does have some tight deadlines, but Condon said, "If we're not chal-

lenged, things don't happen."

There are no new budget appropriations for Access America, but proponents argued it will ultimately save more money than it costs.

[Vice President Gore's Access
America] "is a very good report. I am
very optimistic. If we're not
challenged, things don't happen."

Mary Ellen Condon,
 Justice Department

Some federal agencies have poor records of getting value from IS investments. But it is possible to cut expenses with online delivery of government services — especially with the rise of Web browser technology, said Peter Freeman, dean of the College of Computing at the Georgia Institute of Technology in Atlanta. "I wouldn't reject

such plans out of hand," he said.

The program, announced at the recent Virtual Government '97 conference here, includes the following elements:

Testing online delivery of "commonly requested services," such

as applying for loans or requesting passports.

■Testing a government services card to handle electronic funds transfers for tax refunds, food

stamps, Medicaid, vehicle registrations and postal sales.

■Building a World Wide Web site for businesses to check environmental, safety and health regulations and fill out forms online.

■Testing a Global Criminal Justice Information Network that would give police a suspect's criminal record at his arrest.

Privacy advocates said they worry about the interagency

data sharing envisioned by the Clinton administration, despite the report's assurances that privacy will be safeguarded.

"It's a good thing for people to have easier access to government records and information. However, when you start creating these new databases, you're asking for trouble," said David Banisar, staff counsel at the Electronic Privacy Information Center in Washington.

Still looking for a few good ClOs

Six months after a new law required 23 federal agencies to appoint chief information officers, all but three of the positions have been filled.

But some agencies have only interim CIOs, according to Bruce McConnell, chief of information policy and technology at the federal Office of Management and Budget (OMB).

The roster is in continuous flux, but for now, the Education, Transportation and Defense Departments are still searching for CIOs, McConnell said.

A major stumbling block to finding qualified candidates is money. While the \$115,600 salary in the government pay structure can be boosted somewhat by recruitment and retention bonuses, "it's still in the \$130,000 to \$140,000 range," McConnell said. "The private sector pays three times as much."

Nevertheless, McConnell estimated that one-third to one-half of the agencies' CIOs came from outside government. Some were looking for a new challenge or wanted to spend a few years in public service, he said. A few retired early from private-sector jobs.

In other cases, talented midlevel IS executives in the private sector were willing to take pay cuts to vastly increase their responsibilities. After a few years, their resumes will look much more impressive as they move back to industry, said John Koskinen, deputy director of management at the OMB. — Sharon Machlis

ACCESS AMERICA SCHEDULE

April 1997

- Begin to develop Internet bookmobile-type vehicle
- Infrastructure for public access to environmental data

September 1997

- Pilot test of government services card
- Treasury Department will establish a public/private group to develop electronic payment methods

December 1997

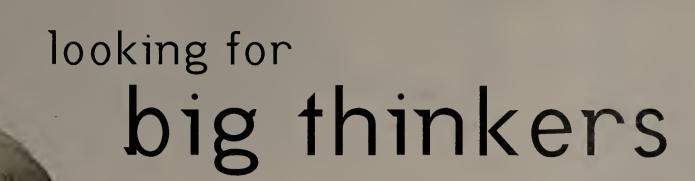
- Online site to go live for access to environmental, safety and health regulations
- Field testing of Global Criminal Justice Information Network

January 1998

Pilot projects
will go live to
deliver mostrequested services online

January 2000

Core set of popular government services will be available online



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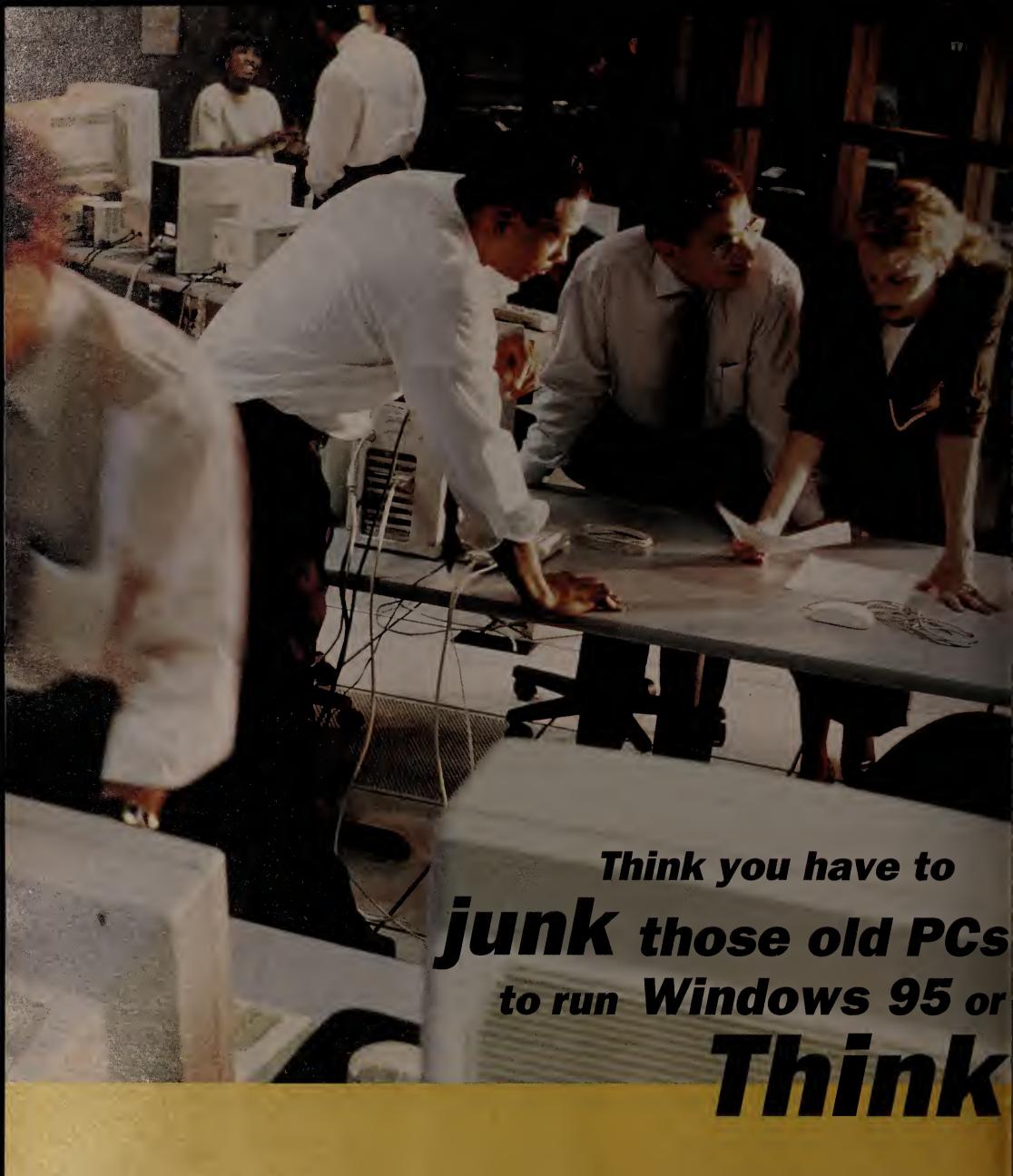
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Microsoft

Computer Industry

IBM's Network Computing Projects business unit has four objectives

- . To produce a line of business applications within 90 days
- 3. To transfer IBM's expertise to enterprise customers
- 2. To demonstrate that Java 4. To generate a large library is suitable for missioncritical applications
 - of extendable, reusable Java code

IBM division builds Java applets for OS/2

By Laura DiDio

IBM'S NEWLY FORMED Network Computing Projects business unit has just completed its first project: designing a Javabased mortgage loan applet for CERA Bank in Belgium.

The 4-month-old business unit has two main goals: to propel IBM to the forefront of Java development and actively assist its Fortune 500 OS/2 Warp accounts in codeveloping applications for the Internet.

The business unit is based in Austin, Texas, and consists of about two dozen top IBM engineers culled from various divisions in the company. So far, it has attracted 20 customers — 16 of which are international concerns.

CERA, one of the top five

CERA's mortgage loan

calculator will allow

over the Internet.

customers to estimate

mortgage loan payments

banks in Belgium, 6,000 employees at 950 branches, anticipates that the new Javabased mortgage loan calculator will be the foundation for its electronic com-

merce efforts, according to Rudi CERA's electronic Peeters, banking officer.

ware farmer shipping diskettes to customers. We want to distribute information fast, cheap and easily to our customers, and the mortgage loan Java applet does just that. Next, we'll do a money-transfer Java applet," Feeters said.

The mortage loan calculator will allow CERA's commercial

customers to estimate their mortgage loan payments over the Internet from anywhere in the world, Peeters said.

"Our customers will simply download the applet from CERA's home page and enter different loan variables such as the loan amount, time to borrow, type of payment and current interest rates," Peeters said.

CERA — an all-OS/2 Warp shop — will be able to maintain and update applications on its local OS/2 Warp World Wide Web server, Peeters added.

QUICK RESULTS

Meanwhile, the mortgage loan Java applet puts transactions online and in real time, so the bank's clients can immediately see the results.

Jon Oltsik, an analyst at For-

rester search, Inc. in Cambridge,

Mass., said, "Users abandoning OS/2 Warp because they can't get access to applications. Developing Java removes

that obstacle because it's platform-independent."

IBM does retain all intellectu-"We don't want to be a soft- al property rights to the Java code it develops in order to reuse the code as the foundation for future applets.

> ''Java is not throw-away code," Oltsik said. "So users get foolproof investment protection. Regardless of whether or not they stay with OS/2, they don't have to toss the baby out with the bathwater."

ENTERPRISE INTEGRATION

Middleware merger

► BEA Systems to buy Digital object and messaging products

By Tim Ouellette

BEA SYSTEMS, INC. is buying a seat at the middleware table with the big boys, including IBM and Oracle Corp.

The Sunnyvale, Calif., company last week agreed to purchase Digital Equipment Corp.'s wellrespected but struggling object and messaging middleware products, ObjectBroker and DECmessageQ, as part of a partnership deal (see chart).

Last year, the company purchased Tuxedo, Novell, Inc.'s leading high-end transactionmonitoring product. The purchase gives BEA a full suite of middleware products that lets users tie together enterprise applications.

FEW CHOICES

That type of integrated suite is otherwise available only from larger companies such as IBM or Oracle, observers said.

The Tuxedo transaction monitor acts as a traffic cop that directs commands and data re-

DRESSING UP **MIDDLEWARE**

Here's how BEA and Digital will combine Tuxedo with **DECmessageQ and ObjectBroker**

- BEA will integrate three products
- Digital will invest in BEA
- Digital will integrate the suite with Microsoft's native Windows middleware
- BEA will port Tuxedo to Digital's OpenVMS
- Digital employees will be offered jobs at BEA

quests to the right places in a network. It has features such as load balancing, two-phase commit and the ability to roll back failed transactions.

DECmessageQ sends secure data messages between applications, using queues to store messages until the data is retrieved. ObjectBroker lets developers reuse objects in those application networks.

"The development world is moving to transactional objects," which result from interaction among object request brokers (ORB) such as Object-Broker and transaction monitors such as Tuxedo, said Evan Baur, vice president of data management research at Giga Information Group in Westbrook, Conn.

As a result of the deal, "Tuxedo application development will get easier [via objects]," Baur added.

A similar standards integration effort by a middleware industry group is already in progress, aimed at uniting message-oriented middleware such as DECmessageQ with ORB technology [CW, Feb. 17].

Existing Digital customers will benefit from the new product development efforts that previously had been stymied by poor marketing and integration at Digital.

"Every time [Digital CEO Robert] Palmer sold off software offerings, he lowered the value of the rest of Digital's software products," Baur said. "[Digital has] to divest all the software now because what is left has less value."

Acquisition spree continues

Ascend Communications uproots Whitetree

By Stewart Deck

LAST WEEK, Ascend Communications, Inc. spent approximately \$70 million to purchase Whitetree, Inc., a developer of high-speed LAN switching products based on Ethernet and Asynchronous Transfer Mode.

Ascend will exchange approximately 1.1 million shares of its stock for all of Whitetree's privately held outstanding shares.

"In general, the message for [networking] vendors today is 'broaden your portfolio,'" said John Morency, an analyst at The Registry, a consultancy in Newton, Mass.

"Look at what happened to Shiva [Corp.]," Morency said. "They were a big player in the remote access area, but remote

access has become commoditized and intensely competitive. Their earnings are down, and their stock has been battered."

SPENDING SPREE

Whitetree is the latest purchase designed to support the Alameda, Calif.-based vendor's effort to broaden its product line.

Last month, Ascend spent \$29 million for StonyBrook Services, Inc. and its line of network management software.

Last June, it spent \$300 million to acquire NetStar, Inc. and its Internet Protocol routing and switching schemes.

As a result, Ascend has extended its scope in terms of remote access product support, scaling from very small to very large, Morency said.

Also, Ascend can now show that it has industrial-strength routing capability that can scale up to very high speeds, Morency

Whitetree's engineering talents will allow Ascend to "develop higher-speed architectures and interconnection options for the [Internet service provider/ carrier markets]," said Craig Johnson, a principal analyst at Current Analysis, a Portland, Ore.-based consultancy.

Analysts said Ascend needs to expand its offerings to continue to attract its core Internet service provider customers and to compete with the Big Four networking vendors: Cisco Systems, Inc., Bay Networks, Inc., Cabletron Systems, Inc. and 3Com Corp.

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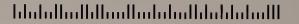
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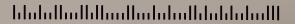
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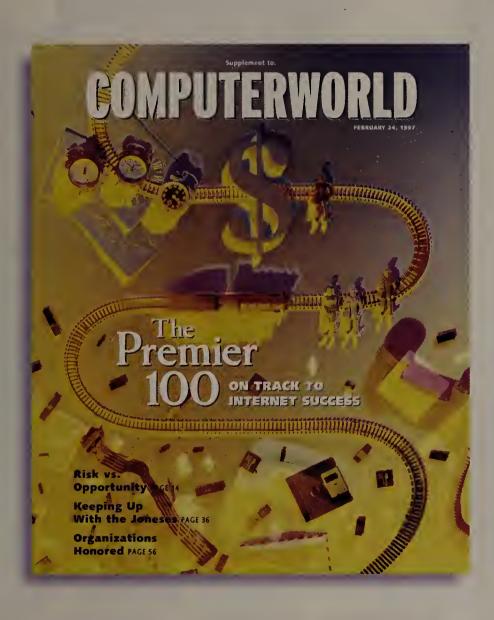
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The Best on the Met

In this issue of Computerworld

Find out who they are in the Computerworld Premier 100 magazine - when we salute today's leading users of Internet technologies, both inside and outside the firewall.



Key topics include:

Risk vs. opportunity: Sales transactions on the Web

Who's leading the way in performing transactions on their sites? Is it a good idea for everyone?

Start small, move up: The intranet evolution

How Web-enabling a non-critical application gives way to widespread use and innovation with Web technologies.

TechSpeak

What are the IT building blocks of Premier 100 organizations' intranets and sites?

Web wunderkind: Retaining Web-savvy pros

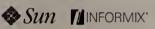
Four Premier 100 organizations offer tips on recruiting (and keeping) these rising stars in the IT workforce.

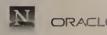
For better or for worse: The 'Net's societal effects

An IT consultant and an academic debate the Internet's impact on the underclass.

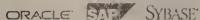
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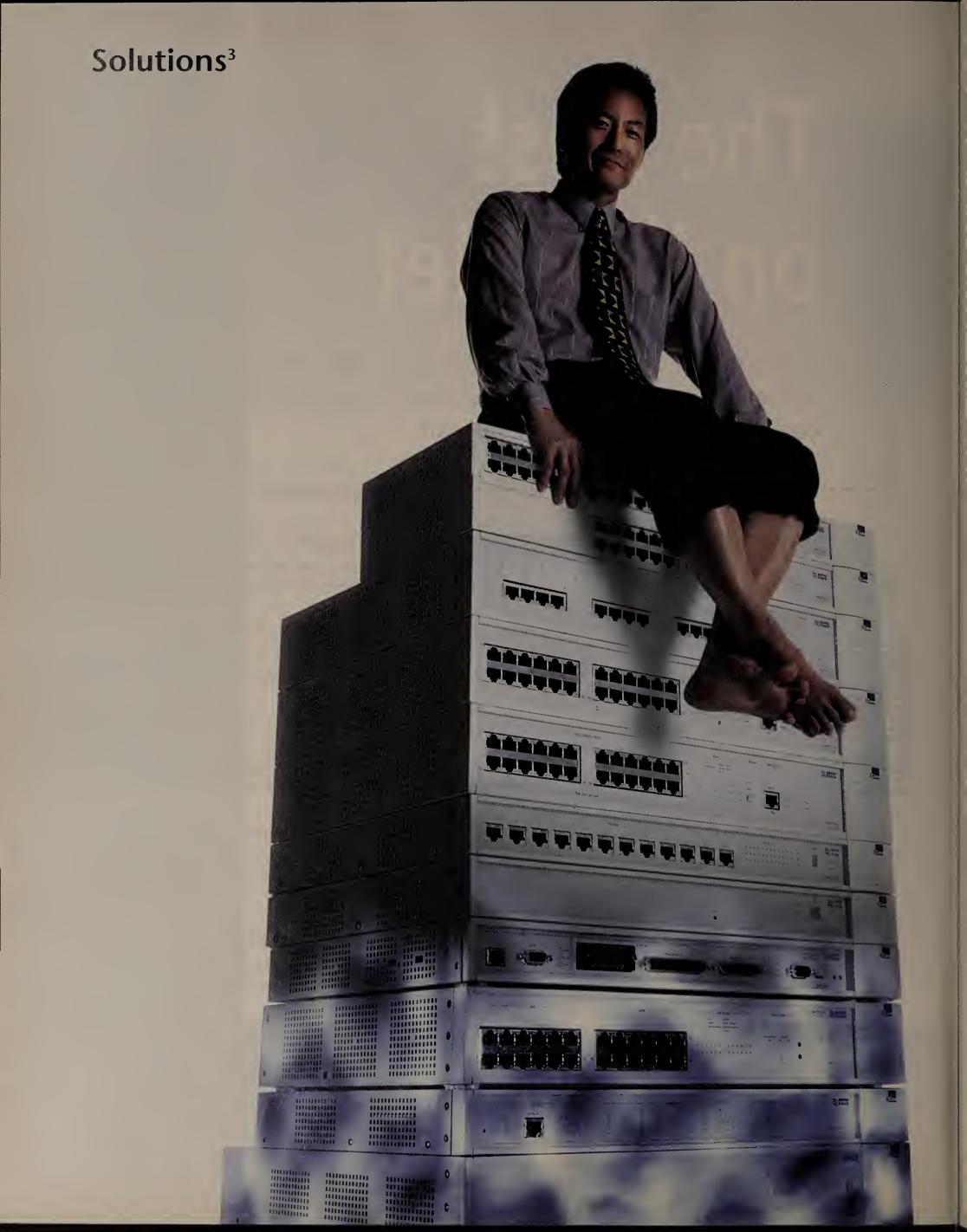












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PINIOI

User group woes Cambridge TechnologyPartners, Inc. releaseda study earlier this

month [CW, Feb. 3] that revealed some less than startling data. It turns out information systems professionals would rather seek guidance from their peers than from analysts or the media.

It brought to mind a series of stories we've run since mid-1996 about various user group woes. If IS prefers



the company of its peers, why are so many user groups struggling — either financially, administratively or with the vision thing?

One reason is that user groups, by nature, tend to be formed and run by volunteers. Failing to run a

user group like a business — both in terms of meeting financial responsibilities and servicing customer needs — can prove fatal. For example, burdened by \$100,000 in debt, the New York Macintosh User Group almost went under last month. And user groups attached to a single vendor can find the going even tougher. An intensely competitive market has vendors very interested in controlling the message that goes out to gatherings of their customers, says Julie Silverstein at Smith, Bucklin & Associates in Chicago. Her division manages more than 30 technical user groups, forums and industry groups.

Another key is the advent of the Internet. A whole online community of similarly buffaloed souls is just a few mouse clicks away for anyone attached to the 'net and not inclined to leave the office.

As for the vision thing, Priscilla Tate, executive director of the Technology Managers Forum (www. techforum.com) says many user groups disband because they have trouble adding value beyond the "help-me-fix-it-now" stage.

So who needs user groups? You do. Good user groups still provide crucial services such as advocacy, networking and a local or regional focus. And much of that work is still best done face-to-face. Remember, there's safety — and a whole lot more — in numbers.

nmn-

Patricia Keefe, News editor Internet: patricia_keefe@cw.com



ETTERS

How did software industry get \$13B piracy figure?

Figure 2 represented as hard fact can bring on hysteria.

I'd like to ask the people who came up with that figure, International Planning & Research (whoever they are), some questions: How was that \$13 billion calculated? Suggested retail prices? Probable street prices? Wholesale prices to distributors/retailers? Does anybody honestly believe that all that software was bought by people who would really have paid cash for it if they were unable to "pirate" it?

And does anyone really believe "officials at the software companies" who said it would bring down prices and/or increase their research and development efforts if a lot of that money made its way to their corporate accounts?

Brian Battles Newington, Conn. bbattles@ct1.nai.net

Editor's reply: The \$13 billion estimate is based on the average retail price of the software in the country where the piracy occurs. Certainly not all the pirated software would have been purchased and paid for, but that's how the industry estimates its losses: by figuring out worst-case scenarios. Software executives say the companies that enjoy additional revenue from a reduction in piracy could use that revenue in a variety of ways, such as passing along lower prices to customers, increasing research spending or paying shareholders a dividend.

Visa should take its own steps to address year 2000

Charge for compliance" [CW, Jan. 13] should have been entitled "Visa passes the buck." Visa wants to keep using a two-digit expiration year, and expects its customers to kludge code to cope. The correct solution is a four-digit expiration year on the card. Once Visa takes that step, then it might consider pushing its customers around.

Larry Millett St. Louis

PC vendors: Don't be stupid and cut back on warranties

s an avid purchaser of Dell computers, let me say it as politely as I can: Screw with your warranties and we will find another provider for all our PCs and servers ["PC warranty changes may up user costs," CW, Jan. 13].

For five years I have been a very big supporter of Dell, not only for its quality, but because of how well it stands behind its product.

If the gentlemen in Austin haven't learned that their customers do in fact notice when they try to trim a little here, a little there, they in fact do.

Dell has done well because of its ability to meet the varying needs of its user basis, but something as stupid as cutting back on a warranty for the sake of helping the bottom line will not come without a price tag. Happy customers are what pays the bills, not new buildings on streets named after the [company's] founder.

John Paquette Sumitomo Sitix Silicon, Inc. Cincinnati jpaquette@ssac.sitix.com

A different view of how PDAs can be useful

FOUND ONLINE EDITOR Johanna Ambrosio's editorial very interesting ["Handheld hype," CW, Jan. 13].

However, I'd like to offer a different view of personal digital assistants and suggest that PDAs really can be usefully applied.

When the PDA is used as an "assistant" to your desktop — and not a replacement

PDAs should assist PCs, not replace them

for it — it can be a powerful tool.

When you view it as a desktop replacement, as Ambrosio did, I can see how any PDA would fall short. They do have small keys, small screens and are generally inappropriate for Web surfing and word processing.

The important factor is the ability to synchronize the information on the PDA with the desktop. The long battery life and the ability to carry the device in my pocket are also advantages over the laptop.

David Lomartire
Portland, Ore.
dml@sequent.com

Computerworld welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Maryfran Johnson, Executive Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

Stamp out digital homelessness

Gordon Eubanks

n the fast-paced computer industry, every year is a milestone. But this year presents a special opportunity to harness the social and economic power of information technology for the benefit of all.

This year begins the third decade of

the PC. It also follows the 25th year of the microprocessor and the 50th year of the electronic computer, two of the greatest inventions of this century.

As we head toward 2000, com-

puting products are becoming faster, cheaper and better. We're all familiar with the market comparison with the automobile: If cars had advanced at the same rate as computers, you could buy a Rolls Royce for about \$2.50 and get a million miles to the gallon.

Both the automobile and PC industries were started by hobbyists, pursued by fanatics and then embraced by the broad population. But before long, IT will It's time to exploit the powers of IT for people, not just for profits.

surpass the auto industry share as a percentage of the U.S. gross domestic product.

Technology has been a great economic engine, but we haven't done a good job ensuring that the benefits of IT extend to all people.

It will be tragic if we allow two societies to arise — the information haves and the information have-nots, the digitally housed and the digitally homeless. Social justice and economic self-interest demand that we make IT accessible to all and an agent for human betterment.

Our top priority must be to exploit computer technology for personal education. Education, like the sun, energizes further human accomplishment. Only by seeding a generation of educated men and women throughout the world can we expect to grow the global economy.

In 1975, there were only 300,000 computers on the planet. Today, we produce twice as many computers every week, or two every second. And we have entered the first decade of the Internet. One trillion bytes of information, which is equal to 60 million typed pages, are posted on the

Internet each month. In short, our industry is on the verge of creating the world's first fully networked society.

OUT OF TOUCH

Yet the stark fact remains that 50% of the world has never made or received a telephone call. Only 10% of the U.S. population is on the Internet. Surveys suggest that 60% of our citizens never read a book, let alone use computers for enrichment. The world of computers and networks can be a gymnasium for the imagi-

nation, but how vigorously we exercise within it will determine how quickly we build strong human capital.

One small step in the right direction is the donation of software and/or hardware to the digitally homeless. Many companies, including ours, give older but perfectly usable products to schools and nonprofit organizations that serve disadvantaged communities. Through focused programs like this, we can boost social responsibility and consumer loyalty at the same time.

Let's remember our human as well as economic compact to use our technology for growth, not just balanced budgets. For enlightenment, not just enrichment. For people, not just profits.

We shouldn't expect miracles, but we should focus our energies on steady improvements in the quality of life around the globe. Instead of turning the information age into a tale of two societies, let's make it a drama of inclusion and human fulfillment.

Eubanks is president and CEO of Symantec Corp. in Cupertino, Calif. At a charity auction last year, he won the title of honorary publisher of Computerworld for a week.

Mr. Bozo, meet Miss Courtesy Worm

Michael Schrage

rom: Outraged <54321.1234@online.com>
To: Michael Schrage
Subject: Your Tiny Brain

Just how stupid are you? No, don't respond. I know how stupid you are because I read your column. I can't believe you actually get paid to write this junk. From now on, please try to write about something you know — that way, your column won't have to appear so often.

Have you gotten flamed lately? Did you respond in kind or in cruel? Most people wouldn't dream of calling up someone they'd never met and leaving an answering-machine message along the lines of, "Hey, putz! You're a moron." By contrast, scores of people don't hesitate to type up and — without the slightest trace of self-consciousness or self-awareness — send an E-mail message that says the same thing.

Like people who turn into maniacs when they get behind the wheel of a car, some folks just can't wait to fire up their PCs and start flame-throwing. Forget 'netiquette for these creatures.

The fashionable IS approach to this surge of E-mail meanness is to filter it

out. Many intranets now offer "bozo filters" to screen out mail from folks they're sick and tired of. In his terrific cyberpunk novel *Earth*, author David Brin postulates an "uber-filter" that he calls a "courtesy worm."

THE COURTESY POLICE

"It is a guerrilla program — an illegal virus — that goes around targeting people who are too angry and vituperative on the 'net,' Brin writes. "Attracted by unsavory, scatological and ad hominem phrasing, the worm gets into the flamer's system and announces, 'Hello. You have

been infected by the program *Emilypost* because your presence on the 'net is impinging upon the rights and enjoyment of others.... We suggest you try behaving in a more grown-up manner. If you don't, you will soon discover certain features of *Emilypost* which...'"

I'd like to propose a more modest approach. Much as we have spell check software that assures that we catch our spelling mistakes before we send a document, we should have "Flame check" software designed to catch our rudeness — intentional and unintentional.

For example, messages that have the word "stupid" or "idiotic" or "peabrained" in them would trigger Flame



Flame checker software would screen outgoing E-mail for rudeness - intentional and unintentional.

check to ask, "Are you sure you really want to send this?" If the response was positive, Flame check would flash the question, "Are you sure?" before the message is sent.

Similarly, Flame check might make it difficult for you to immediately respond to a message with a hostile phrase in it—to assure that you don't unthinkingly counterflame.

KEEP IT IN CHECK

There are all kinds of ways to check an instinctive tendency to flame. What's wrong with a bit of software to make people a little more aware of the messages they are sending? It's just as important to build filters for the outgoing messages as for the incoming ones.

This suggestion is placed in the public domain in the hope that it might inspire an online service or an intranet manager or two to embrace it as a design option. Consider the suggestion my small effort to improve the quality of network life and discourse.

Whether you like this modest idea or not, could you do me a small favor? Whatever you do — please, don't write.

Schrage is a research associate at the MIT Media Lab and author of No More Teams! His Interset address is schrage@ media mit.edu.



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Paying the Wintel tax

DAVID MOSCHELLA

NDUSTRY RESEARCH indicates that about 70 million PCs were sold worldwide last year. During the same period, Intel and Microsoft made combined profits of about \$7.7 billion — \$5.2 billion for the chip master and \$2.5 billion for the software giant. Dividing \$7 billion by 70 million units reveals that the Wintel duo makes about \$100 of profit per PC. Let's call that the Wintel tax. It's a useful, if somewhat oversimplified, metric.

Assuming a four-year life cycle for PCs in corporate America, the Wintel tax comes to roughly \$25 per ma-



chine per year. For that small amount, customers get truly interoperable hardware, high rates of investment and innovation and clear standards leadership. It's no wonder that people who use computers remain far less concerned about

Wintel's dominance than those who sell them.

From a global perspective, the numbers are considerably more intimidating. The stock-market capitalization for each company (price per share multiplied by the total number of shares outstanding) has passed the \$100 billion mark. When combined, the total Wintel valuation matches the combined central bank reserves of the U.S., Japan, Germany, France and the U.K. According to Fortune, Intel was the fifth most profitable U.S. corporation last year. It will likely assume the No. 1 ranking this year or next.

BLEAK OUTLOOK

The Wintel megafortune will continue to grow because prospects for non-Wintel platforms have never looked so dim. Apple sales are falling rapidly; IBM has cut back its OS/2 promotion and shifted its PowerPC chip away from the Windows NT market. Only a seriously weakened Digital remains committed to building a platform alternative to Windows NT. Unix momentum has slowed considerably, especially in the once-vibrant workstation segment. Wintel's desktop and low-end server dominance has now been generally conceded.

One of the ironies of this duopoly is that, although Intel is the bigger and more profitable player, most of the industry's concern centers on Microsoft. Intel has shown admirable restraint in not using its position in microprocessors to dominate related sectors. The only companies it really wants to clobber are plugcompatible rivals such as Advanced Micro Devices and Cyrix.

In contrast, Microsoft seems determined to try to use its market and financial power to dominate just about every software market of significance. Consequently, Microsoft's list of enemies includes most of the major software players, and Intel's Andy Grove has emerged as one of the industry's elder statesmen.

For better or worse, customers have granted these two companies the privilege of steering the world's most important industry. They set standards, dominate research and development, dole out huge amounts of venture capital and even shape our view of where the industry is headed.

Although there are reasonable scenarios in which the power of both companies could be restrained, none of the scenarios can happen quickly.

For at least the next two years, it's a Wintel world. We can only hope that our future taxes remain the bargain they've been so far.

Moschella is senior vice president of research at Computerworld, Inc. His Internet address is david_moschella@cw.com.

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Digital cuts PC prices

Digital Equipment Corp. has cut the price of its Pentiumand Pentium Pro-based Venturis and Celebris PC lines by up to 19%. Pricing for the entrylevel, Pentium-based Venturis systems will start at \$977; pricing for the higher-end Celebris GL models will start at \$2,078.

Ascent decompresses

Ascent Solutions, Inc. in Miamisburg, Ohio, has released decompression software for mainframe files. The PKZip 2.1 for VM package can translate EBCDIC files and ASCII files. Pricing starts at \$1,137.

MULTIFACETED

Multifunctional products can perform two or more functions. For example, a printer could have fax and printing capabilities.

Projected U.S. multifunctional product shipments

| 1996 | 731,000 |
|------|---------|
| 1997 | 1.48M |
| 1998 | 2.21M |
| 1999 | 2.67M |

Source: Dataquest, San Jose, Calif.



The Millennium mainframe validates trades made on the Chicago Mercantile Exchange floor

Amdahl rates a Buy

► Chicago Exchange swaps IBM for competitor, boosts trading performance

By Tim Ouellette

ONE RECENT TRANSACTION among the millions made at the Chicago Mercantile Exchange involved more than just pork belly futures.

The famous commodities market swapped an IBM machine for a Millennium CMOS mainframe from Amdahl Corp. to run a critical trade clearing

The clearing system guarantees that money — between \$200 million and \$300 million each business day — will change hands for each trade the famous yellow-jacketed Chicago traders make for pork belly futures, wheat crop options and foreign currency exchanges.

The new system reduced processing costs, sped up the trade clearing process and gave the exchange more flexibility to add processing power quickly.

"We needed cost-competitive [mainframe] capacity," Mike Kelly, chief information officer at the exchange. "The differences between Amdahl and IBM were clearly in cost per MIPS."

MORE FLEXIBILITY

The Millennium, a four-processor model rated at 60 MIPS, beat out IBM's mainframe by costing more than \$1,000 less for each MIPS of processing

The Millennium also gave the exchange the flexibility to ex-

pand processing power at a moment's notice.

For example, when the market hits a new trading peak, the system needs more processing power to clear all trades. (The last major trading peak was in 1994, when the government raised interest rates and 2.5 million trades flew back and forth across the exchange in one day.)

"Our markets are not predictable, and we have to lay in a lot of excess capacity in a flexible way, not by buying processors that will remain idle," Kelly said. "We do capacity planning from trading peak to trading peak, rather than from year to year."

Kelly worked out a deal for Chicago Exchange, page 48

STORAGE SYSTEMS

HP DAT drive offers triple data storage

By Matt Hamblen

HEWLETT-PACKARD CO. has begun volume shipments of a digital audio tape (DAT) drive that can store 24G bytes of compressed data on one cassette. That gives DAT users three times the current capacity.

The Palo Alto, Calif.-based company's new HP SureStore

"With the way

storage is

bytes is

growing, 24G

important."

- Fara Yale,

Dataquest

DAT24 is further evidence of users' growing storage capacity mands, analysts said.

Innovation in tape storage is also a way for tape makers to fend off competition from other storage technologies such as CDs and disk drives, they said.

"With the way storage is growing, 24G bytes is important," said Fara Yale, a principal analyst at Dataquest in San Jose, Calif. Information systems departments have more Internet Hewlett-Packard, page 48

N MINKINA

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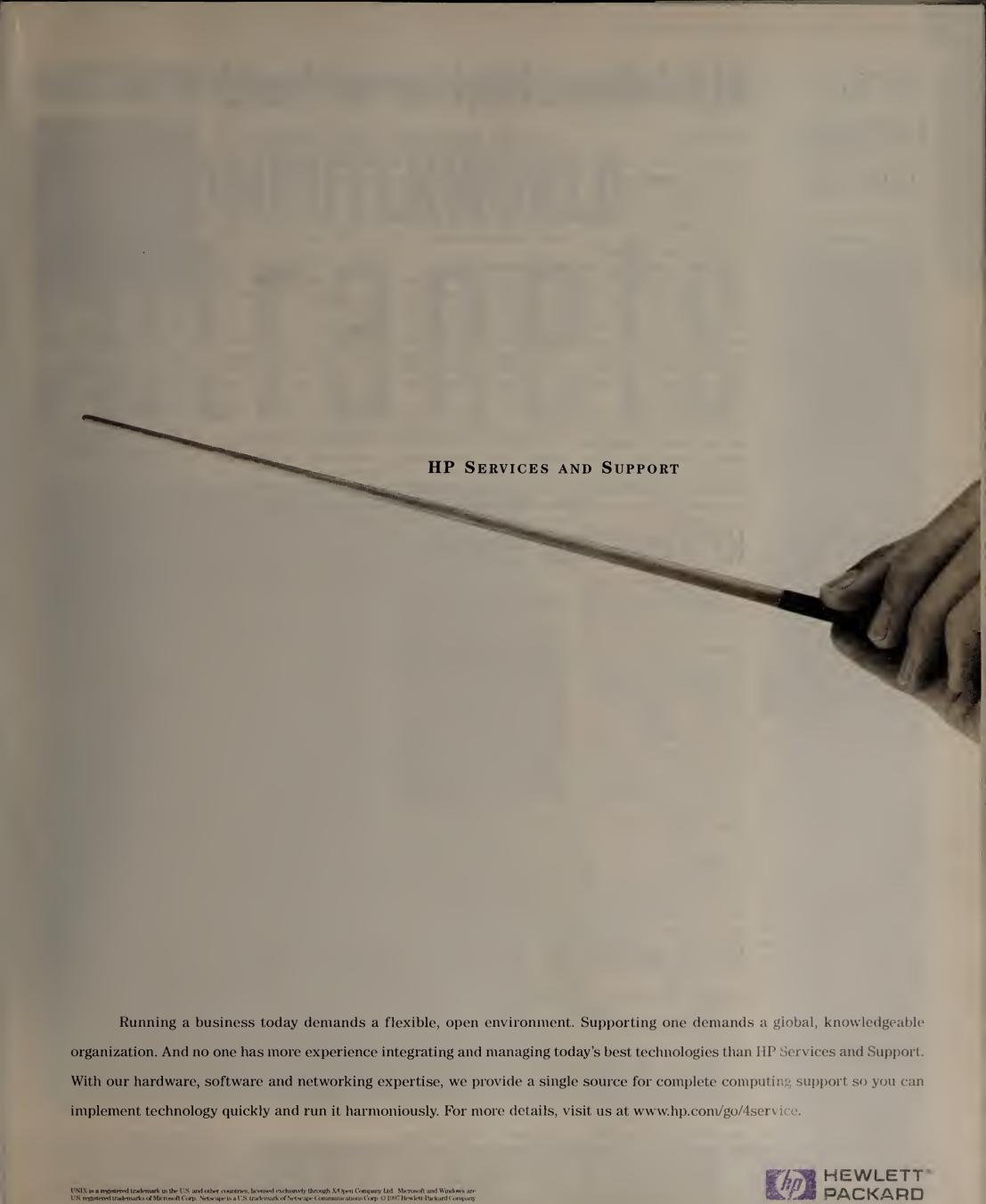












Chicago Exchange trades up

CONTINUED FROM PAGE 45

Amdahl to provide an additional processor on an emergency basis without payment, with an option for Kelly to return the processor within 30 days for free.

Amdahl's quicker processing has made the trade clearing system faster, which is important because trade clearing is now done on the same day, not as an overnight batch process.

"Amdahl has bought us 30 to 40 minutes of extra time in the same day now," Kelly said. "So we can pick later prices and have a more accurate view of the day's results."

The hardest part about abandoning the reliable IBM ma-



"The differences between Amdahl and IBM were clearly in cost per MIPS"

chine — although an IBM mainframe still acts as the Millennium's backup system — was familiarizing the trade clearing managers with Amdahl as a company.

That is why contract wins such as this are important for the Sunnyvale, Calif., firm, analysts said. Amdahl has refocused its business on services lately. It has seen its mainframe market share slip to 10%, behind IBM and surging Hitachi Data Systems Ltd. in San Jose, Calif.

"But Millennium, as a firstgeneration CMOS machine, is on par with IBM's latest thirdgeneration machines," said Carl Greiner, an analyst at Meta Group, Inc. in Stamford, Conn.

So far, performance and reliability have met expectations.

"The Amdahl mainframe went up in December, and I am telling you it hasn't twitched," Kelly said. "But reliability is what we expect from this class of machine."

ALR follows Intel server trend

By April Jacobs

ADVANCED LOGIC RESEARCH Corp. (ALR) is trying to break in to the high-end Intel Corp.-based server market by offering a six-processor box at four-processor prices.

ALR in Irvine, Calif., recently announced its Revolution 6X6, which can support up to six 200-MHz Pentium Pro processors and features up to 512K bytes of RAM cache per processor. The server runs Microsoft Corp.'s Windows NT Server, Novell, Inc.'s NetWare, IBM's OS/2 and Santa Cruz, Calif.-based SCO, Inc.'s Unix.

But how the new server will fare is unclear. Jennifer Munson, an analyst at Workgroup Strategic Services, Inc. in Portsmouth, N.H., said ALR will be fighting an uphill battle against server giants, including Hewlett-Packard Co., IBM and Compaq Computer Corp.

"[ALR doesn't] even show up on the radar screen," Munson said. She said the company will likely start by selling to its small base of satisfied customers.

FULL SUPPORT

And ALR has a loyal following. Michael Black, vice president of sales and marketing at Datapoint Corp. in San Antonio, said his company has worked with ALR for several years to supply ALR servers to customers who run Datapoint's ArcNet network operating system.

"We have to be very comfortable with the people we're working with, and we have a lot of experience with multiprocessor systems, because [ArcNet] is brutal in terms of running down

hardware," Black said. He said the Revolution 6X6 performed well but had some bus-related bottleneck problems.

"We've been very happy with the fact that [ALR] has been bringing technology to the market faster than anyone else and add to that a good capacity for storage and retrieval," he said.

The Revolution 6X6 costs \$14,995 for a model that includes one 200-MHz Pentium Pro processor. It is due to ship next month. That compares with Compaq's ProLiant 5000, which supports up to four Pentium Pros and costs about \$13,920 for a single-processor model. A six-processor model costs \$36,000.

ALR ships server management software, but that is still proprietary at this point, officials said.

REVOLUTION 6X6 SERVER FEATURES



- Six-way CPU-bus clustering technology
- Up to 300G bytes of hot-swappable drive storage
- Support for up to six 200-MHz Pentium processors

HP triples data storage

CONTINUED FROM PAGE 45

downloads and larger files due to sophisticated graphics and video that vastly increase storage demand. Plus, with systems working around the clock, the window for taking time to run backup procedures is shrinking, she said.

Some end users may be pleased to find expanded capacity for the relatively low cost of DAT, analysts said. Others are skeptical of the DAT offering.

"Bigger drives are overrated," said Jeff Davis, manager of IS at Spaulding Sports Worldwide in Chicopee, Mass.

A 24G-byte, low-cost DAT product makes sense for backing up notebooks and backing up data at small companies, Davis said. But using DAT to back

HP SURESTORE DAT24



Capacity: 24G bytes compressed per tape

Transfer rate: 7.2G bytes per hour

Price: \$2,101 (external)

up large LANs would make less sense because the system restore time is slower with DAT than with digital linear tape and other storage technologies, he said.

Analysts said a big advantage of DAT technology is its low price compared with other tape technologies.

HP is selling the external version of the DAT24 for \$2,101; five cassettes cost \$200. Sony Electronics, Inc. in Tokyo recently announced a 24G-byte DAT drive, but the company hasn't begun volume shipments in the U.S., analysts said.

HP, Sony and Seagate Technology, Inc. in Scotts Valley, Calif., control the lion's share of the DAT market, analysts said.

Analysts said the much-touted Digital Video Disc (DVD) RAM may have trouble keeping up with 24G-byte DAT products. When DVD drives appear,

possibly next year, observers said they may cost \$1,000 and will offer only 2.7G bytes of capacity. DVD is a disc that is read with a laser; DAT includes tape that is read electromagnetically.

Of all tape storage drives installed in the U.S., there are about 4.4 million DAT drives, second to the 12.8 million ½-in. data cartridge drives, according to analyst Michael Peterson, president of Strategic Research, Inc. in Santa Barbara, Calif.

HP is also announcing Tape-Alert to allow network administrators at local and remote sites to monitor DAT storage problems, such as dirty tape heads and worn tape. A warning of DAT problems can be sent from TapeAlert to an administrator by electronic mail or pager.

TapeAlert is firmware, or software contained in a memory chip that holds its value without electrical power.

Motorola preps 300-MHz PowerPC chip

▶ Apple expected to tap 603E series for its line of PowerMacs, PowerBooks

By Kristi Essick London

MOTOROLA, INC. next month plans to release a 300-MHz 603E PowerPC microprocessor, which Apple Computer, Inc. is expected to use in future Power-Macintosh and PowerBook models.

The Schaumberg, Ill., company plans to unveil the chips at CeBit next month in Hannover,

Germany, a Motorola executive said last week.

Apple hasn't publicly said it will upgrade its desktop and notebooks to the processor, but Paul Clark, European marketing and communications manager for Motorola's RISC group, said such a deal is expected.

The 603 series chip will be the fastest chip Motorola has ever released.

Motorola has previously an-

nounced its plans to manufacture a 300-MHz 603 microprocessor, but until now the company hasn't indicated when the chip would be available or which systems manufacturers would use it.

UP FOR ADOPTION

Clark said Apple is considering building a system around a forthcoming version of Motorola's 620 PowerPC processor. Groupe Bull is expected to adopt the upgraded 620 chips in its line of Unix servers.

Apple recently announced the PowerBook 3400 based on Motorola's 240-MHz 603E chip and the PowerMacintosh 9600/233 based on the 233-MHz 604E processor. Apple in Cupertino, Calif., is positioning the high-speed notebook and desktop as strong rivals to Intel Corp.'s Pentium-based PCs, said Peter Lunn, PowerBook business and marketing manager for Apple U.K. and Ireland Ltd.

Essick writes for the IDG News Service in London.

From the editors of COMPUTERWORLD monthly look at Web developments behind the firewall

Volume 2 • Number 1 • February 24, 1997

WEB DATA WAREHOUSES

Data, free-for-all?

Web-enabling your warehouse is cheap and simplifies data access. Is there any reason not to do it? No, as long as you've resolved security and bandwidth issues.

> If you've built a data warehouse in the past five years, there's a good chance you're about to make the same decision Brent Brough just did. Namely, that it's time to Web-enable your warehouse.

And like Brough, a business analyst for the Workers Compensation Fund (WCF) of Utah in Salt Lake City, you'll probably find the project extraordinarily easy to cost-justify.

Alice LaPlante After all, the hard work is done. Your warehouse is already up and running. Your corporate intranet is in place. And almost certainly, your users are familiar with Web browsers, so you can use that model and avoid all the technical issues associated with client/server data access tools.

"We didn't want to have to include every printer driver in the world in our client software. Neither did we want to have to train and support external users," says Brough, whose Adabas D data mart had generated paper reports for WCF customers on employee claims, losses and statistics on work-related injuries and illnesses since being built on a Sun Microsystems, Inc. SPARCstation last year. By creating online access to it via the Web, "we don't care what hardware, software or printer [users are] using. We don't even have to know," he says.

Welcome to the latest use for the Web, inside and outside the corporation: data warehouse access. If it sounds like a panacea for all your data woes, it's not — though it might be a way to get more use from the warehouses you worked so hard to cost-justify. Its own price tag depends on the infrastructure you already have, and hurdles remain — security and bandwidth, as always, among them. And some users will still need the more sophisticated client/server access

Continued on page 2



WEB DATA WAREHOUSES



Continued from page 1

tools for the forsceable future. But data warehouse gurus are promising, once again, that the promised land of easy, universal access to timely corporate data is in sight.

WHAT'S ONLINE

Adrienne

Tannenbaum at

Database Design

Solutions hosts our

forum on Web data

warehousing.

www.computerworld.com/

"What we see everywhere is a trend toward supplanting traditional client/server access with Internet and Web technologies," says Richard D. Hackathorn, president of Bolder Technology, Inc., a consulting firm based in Boulder, Colo.

In fact, the Patricia Seybold Group believes that by 1998, a full 50% of all corporate database queries will be executed by Web browsers.

Besides being easy to use and endemically cross-platform, Webenabled data access is getting easier to build.

In the past, Brough says, building a Web application would have meant mastering Java, CGI or Perl — not the most intuitive skills to pick up quickly, he says. But new Web tools are making it possible to Web-enable warehouses without many learning curve headaches. In Brough's case, a Software AG product called I Express promises to provide automatic Web links to the existing WCF warehouse application programming interfaces, eliminating the need for Brough's team to do extensive programming in Internet scripting or interface languages.

Beyond these considerations, the cost advantages of Web warehouses have yet to be fully understood.

Cost-effective?

The cost of designing and building the warehouse itself remains constant, but costs shift from the client to the server when the Web is used as the primary communications pipeline,

says Frank Gillette, a senior analyst for data warehousing at the business intelligence service of Hurwitz Group, Inc. in Newton, Mass. That means supporting highly robust

> servers that can sustain unlimited access points and possibly a tremendous volume of simultaneous hits.

> "If you're just starting out, with no internal network and no internal Web expertise, the costs and the risks add up. But if you've got the infrastructure in place, it could be very cost-effective," he says.

Having a solid infrastructure goes beyond costs, too: Robustness and

reliability are at stake. After all, if you are asking a broader population of users to depend on the Web for critical business functions, it had better be there when they need it. Stanford University, whose 20,000 users can access warehouses

with their Web browsers, has written an application that checks the campus Web every 15 minutes to make sure it's up and responding quickly to user requests. All performance and reliability results are logged so systems analyst Patrick Nolan and his staff can perform downtime analysis over an extended period, thus "telling us if we

need to be concerned about capacity or performance," he says.

through year 2000: **30.8**%

Annual growth rate

of data warehouse

software revenues

Capacity is another twist in the road.

The irony of getting good results from your initial foray into a Web warehouse, Hackathorn says, is that "you're likely to be successful. And that's when it gets hard." Supporting 20 or 50 or even 100 browser users is cheap and fairly simple, he says, but "after that, things escalate rapidly, and

Hang on to those client/ server tools — for now

Many IS professionals and database experts agree that Web access will eventually become a standard feature of corporate data warehouses. But when that will happen at any given firm depends on several factors, so don't give up the ghost on traditional client/server access tools until then.

Organizations that want or need to extend data warehouse access to parties outside the company quickly went to the Web, notes Alan Paller, director of research and education at the Data Warehouse Institute in Bethesda, Md.

"The huge cost and difficulty of managing client software on external customers' and suppliers' computers made this decision a nobrainer," he says. One such organization: the Workers Compensation Fund (WCF). Offering external users even basic access would have been too expensive and logistically chaotic to implement using a traditional client/server architecture, says Brent Brough, a business analyst at the WCF.

Companies whose data warehouse applications serve a large group of internal users have also found the case for moving to the Web quite compelling, Paller says. Take CompuCom Systems, Inc., a Dallas-based value-added reseller that launched its data warehouse in January 1996 and added Web access four months later (see story page 6). Although about 500 internal users were already depending on the Business Objects S.A. client/ server tool to query a Sybase data warehouse for customer marketing and product information, making the warehouse available via the

WEB DATA WAREHOUSES

Average return · on investment in data warehouse technology over three years:

you will probably have to make some pretty significant upgrades to your network and Web server infrastructure when

Average initial

investment in data

warehousing per

corporate customer:

you start getting audiences of 1,000 or 10,000 users."

Security, of course, is another major hurdle, whether you're providing access to internal or external users or both. Stanford, which makes data available to both, has its own IP hub so it can perform individual machine IP checks and can use the grant/ revoke mechanisms in Sybase, Inc. and Oracle Corp. databases using user identification passwords with file

control. The WCF, besides needing a foolproof firewall to protect the data, will need protection for electronic commerce transactions so policy-

Web and, eventually, the CompuCom intranet

"has ended up serving a whole new class of user," says Darrell Piat, CompuCom's director of advanced technologies.

Data warehouses that serve just a small pool of internal users may feel less urgency to move to the Web, but Paller says the question will soon be moot because most warehouse vendors are scrambling to incorporate Web-enabling features into their products. And a plethora of third-party tools are also becoming readily available (see Hot Picks, page 4).

But while browser functionality will be enough for most warehouse users, at least some will require the more sophisticated drill-down analysis and transactional features of full-blown client/server tools, says Richard D. Hackathorn, president of consulting firm Bolder Technology. He says he sees most companies setting up a two-tier

holders can eventually pay bills online using credit cards. "Like everyone else, we're looking at installing Secure Socket Layers," Brough says.

But some security hazards and their solutions go beyond building firewalls and encrypting data. For example, what if savvy users pull together data — all of it seemingly

innocuous on its own — from other sources, internal and external, to come up with some very damaging and eonfidential knowledge of your business? "This is a very serious concern," Gillette says.

If information bandits have ill intent, even honest users can become intruders of a

> sort. Idiosyncrasies in the information and, therefore, underlying business processes become much apparent, and such things as data quality, problem logic

access strategy that gives the enhanced functionality to those who need it.

"We find that browsers meet the needs of 80% of our users," says Patrick Nolan, a systems integrator at Stanford University who has made several reference data warehouses available to Stanford's 20,000-user Web population. For the remaining 20%, Stanford installs Brio Technology, Inc.'s BrioQuery and BusinessObjects.

At John Deere Insurance Group, systems analyst Greg Kinman believes Web-enabling the SAS data mart is a first step toward cost reduction in his firm's portable computing operations. "When anyone in the field can dial in from anywhere, no matter what hardware and software they happen to be using, we'll be able to dramatically reduce our field maintenance and support costs," says Kinman, in charge of Deere's intranet warehouse project. — Alice LaPlante

and disagreements about business operations are exposed for everyone to see.

"When you open your warehouse up to the Web, you are revealing all to a

warns. research except * --- Patricia

Seybold Group initially intend to show it to that larger audience. But inevitably, business pressure will come: People will say, 'Why not give me a password just so I can look?' And you think, why not?"

much larger audience," Source: All International Data Corp. Gillette "You might not

Average number of Web servers sold for comprate intranet applications in 1996:

Deja Vu All Over Again

Despite these obstacles, users are finding the Web is the way to go. For example, Stanford's 20,000 users made the goal of providing universal

access to a growing number of campus warehouses prohibitively expensive, systems analyst Nolan says — that is, until a Web connection was forged.

Today, the university's Sun SPARCstation Web server connects to the

campuswide TCP/IP backbone and accesses a Sybase data warehouse running Sybase SQL Server. Thus, any user who logs on to the Stanford Web, no matter what type of device he happens to be using, can peruse a variety of data sources and look up names of faculty, students and staff members; check on course offerings; or find a room number for an event or class. Stanford's meta data has also been placed on the Web so authorized users can get queries cross-referenced across disparate departmental data warchouses.

Nolan uses one of the myriad new tool sets that provide Web capabilities to existing data warchouses Sybase's Web.SQL, which manages Continued on page 4

Average number of all database queries that will be executed by Web browsers by 1998:

Average number

of Web servers

sold for Internet

use in 1996:





Continued from page 3

the server connection, parses Webpage-embedded SQL queries to the server and formats returned results from the database. Because the Sybase tool automatically handles the more tedious overhead chores, such as writing code to handle those functions for each Web page, all Stanford programmers needed to do was embed SQL statements in any Web page that accessed the database.

Total time to Web-enable the data warehouses: just two months. And the cost was minimal. "Most of your expenses are involved in building the initial warehouse," Nolan says. "We were able to adapt them to the Web in no time at all."

But until Web tools mature, most companies will have some users who still need the more sophisticated drill-down analysis and ad-hoc querying capabilities that client/server products offer, Bolder Technology's Hackathorn stresses.

At MSAS Cargo International, Inc., an international freight forwarding firm in Burlingame, Calif., the number of database queries executed by Web browsers is already hovering at 80%, says Eugene Poznikov, electronic data interchange coordinator. "We simply can't afford to write a new report or application every time a customer requests a different perspective of the data," notes Poznikov, who has been beta-testing Interweave Software Corp.'s Web warehouse software, DS Modeler, and DS Server, which gives intranet browsers access to various MSAS distributed IBM AS/400-based warehouses, "Neither do we have time to train people on the more complicated access tools. We're a small team."

The WCF provides another typical case in point. Theoretically, warehouse data was already available in its Adabas D data mart, which used Software AG's SourcePoint to automatically extract data from an

Hot picks

EXPLAINER

A sampling of products data warehouse managers, analysts are high on

- brio.web.warehouse includes three components: brio.query.server, which performs unattended processing of data warehouse data via the Web or corporate intranet; brio.quickview, which delivers snapshot reports of warehouse data to users via Web browsers; and brio.insight, which gives users dynamic, interactive control of reports within their Web browsers, even when disconnected from the network. All can be used with Brio's desktop online analytical processing (OLAP) query tool, Brioquery Enterprise.

 Brio Technology, Inc. (415) 856-8000
 Palo Alto, Calif. www.brio.com (demos)
- DSS Web lets users perform dynamic OLAP queries in real time with any Web browser against relational data warehouses, via a corporate intranet or the Web.

 MicroStrategy, Inc. (703) 848-8600

 Vienna, Va. info@strategy.com (demos)
- htmSQL allows developers to integrate SAS data into Web pages using SQL queries embedded in HTML. Queries are processed in real time.

 SAS Institute, Inc. (919) 677-8000

SAS Institute, Inc. (919) 677-8000
Cary, N.C. www.sas.com (demos)

- IQ/LiveWeb is an intranet database query and reporting tool that lets companies offer data warehouse access to internal and external users. Users can build queries and reports on Windows clients; publish reports on Unix or Windows NT servers; and request and view warehouse data using a Web browser.

 IQ Software Corp. (800) 458-0386

 Norcross, Ga. www.iqsc.com (demos)
- OpenWarehouse Web is a Web-enabled version of HP's Intelligent Warehouse management software. Includes a B1 security Web server platform, a set of nine Web-based applications and HP Professional Services consulting. Hewlett-Packard Co. (408) 725-8900

www.hp.com

Oracle Applications Data Warehouse allows users to create data warehouses from transactions generated by Oracle database applications, which can then be accessed by Web browsers and most Web query and decision-support tools.
 Oracle Corp. (415) 506-7000
 Redwood Shores, Calif. www.oracle.com

Adabas C transactional database. Yet the client software used to query the mart was less than intuitive. It needed to be purchased for and installed on the desktops of all users who requested querying rights. And then there were the usual training and support issues. So all but the most sophisticated WCF users ended up still going to the information systems group for adhoc querying or even customized reports. Web access eliminates these

Cupertino, Calif.

problems and more, Brough says.

At John Deere Insurance Group, it is the portable access promised by Web technology that has Greg Kinman the most enthused. Kinman, a systems analyst at the Moline, Ill-based subsidiary of the equipment manufacturing giant, is in charge of a simultaneous effort to build a robust intranet and to make an existing SAS Institute, Inc.-based warehouse acces-

Continued on page 9

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CompuCom: A Late Bloomer That Quickly Sprouted

ack in September 1995, Dallasbased CompuCom Systems, Inc., despite being a \$1.4 billion valueadded reseller in the high-tech computer hardware, software and services market, had no data warehouse. No Web site. No way for company sales reps or business managers to run ad-hoc queries against corporate sales and product databases. And to ask IS to generate a customized report took a staggering two weeks.

All this at a time when the systems integrator and technical services firm was growing at a 28% compound annual revenue growth rate. Hardly the time to permit information gridlock.

Darrell Piatt, director of advanced technologies at CompuCom, says building a data warehouse was the obvious solution.

So within just four months --- by January 1996 — CompuCom had a 10G-byte Sybase SQL data warehouse successfully installed on a Hewlett-Packard Co. HP 9000 server. It allows users to retrieve everything from historical information on customer accounts to current product pricing, order status, distribution and inventory information using Business Objects S.A.'s BusinessObjects query tool.The users were ecstatic, Piatt says, though access was initially limited to employees with networked computers on their desktops. Once word got out in the field about the project, his staff would get calls as early as 7:30 a.m. from field sales reps calling on car phones on their way to meetings, requesting immediate updates from the warehouse on customer account activities.

"Sometimes we even sent out sales figures over text pagers to make sure they got them in time," he chuckles. Eventually, access to the data warehouse was extended to mobile laptop users.

So far, so good. But then, just as the initial data warehouse was going live, CompuCom bid on a major contract to provide California's city, county and state agencies and educational institutions with computer hardware, software and services. CompuCom would be required to run two computer storefronts --- one in San Francisco and one in Sacramento — as well as provide online access to pricing and product information and an electronic catalog and order-tracking system that any qualified state



CompuCom's Darrell Piatt (left) and Kent Sakuda: Most routine queries are now answered via the Web warehouse

employee could access from any location.

This presented a challenge: Although CompuCom had previously created a proprietary Lotus Development Corp. Notes-based procurement system to help larger corporate customers expedite internal purchasing approval processes, that required installing client software on all desktops that would be used in the process, which meant adhering to strict hardware, software and network standards. "We realized that only the Internet provided the universal sort of access that the California contract required," Piatt says.

CompuCom won the California bid, and the Web-based warehouse went live in April

1996. The responses have been "very positive," says Paul Apfel, program manager for the department of general services for the state of California in Sacramento. "There's a learning curve to everything new, of course," he says. "But we're getting constant feedback that tells us our users are very happy."

The initial data warehouse cost approximately \$800,000, including all hardware, software and development labor, Piatt says. To build the California Web link, CompuCom spent an additional \$100,000. That investment is now being leveraged as other large CompuCom clients are offered similar electronic hookups. As of January 1997, more than 40 CompuCom corporate customers have their personalized catalogs available via the Internet. And by the end of this month, CompuCom suppliers will be able to log on to a secure Web page and access detailed information on sales of their products. Now all data is also available to employees via the company intranet.

The benefits that accrue to CompuCom, other than the chance to win more business through demonstrating superior customer service, include cutting back on "call center" operations. Previously, the only way customers could get information on products, prices and delivery dates was to personally call a member of their account team. Today, Piatt says, most of the more routine inquiries are simply answered electronically via the Web warehouse. This does not mean, however, that CompuCom has laid off any workers or otherwise scaled back operations.

"Right now we're experiencing a 40% annual growth rate," Piatt points out. "We're not looking at head count reduction so much as finding ways to add business volume without unduly increasing our overhead."

--- Alice LaPlante

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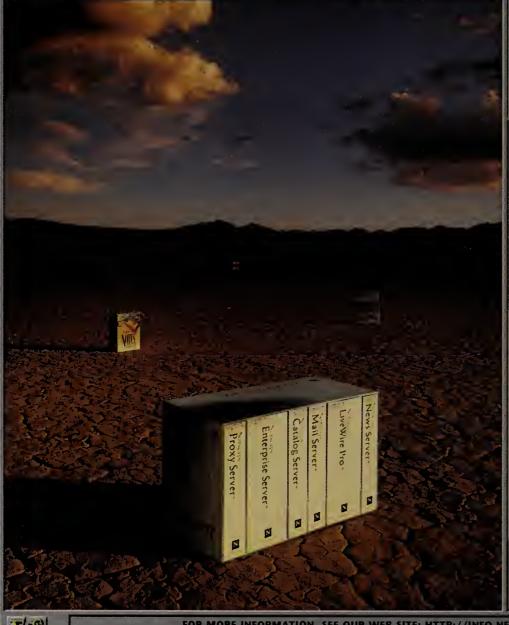
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| | SUITE SPOT | BACK OFFICE | / LOTUS NOTES |
|---|---------------|-------------|--------------------------|
| Standards-Based Mail, Messaging & Discussion Apps | Yes | No | No |
| Standards-Based Distributed Search & Indexing | Yes | No | Only Thru Replication |
| Server-Based Java & JavaScript | Yes | No | No |
| Native Support For Oracle, Sybase, Informix, & ODBC | Yes | OOBC Only | OOBC Only |
| Cost w/1,000 Clients | \$59,300 | \$183,386 | \$83,383 |

SUITESPOT VERSUS ALTERNATIVE SYSTEMS

Unlike older technology, only SuiteSpot's open-server product family allows you to build one architecture for Internet and intranet applications - one architecture that's cheaper and easier to maintain. And SuiteSpot easily integrates with current client/server applications running on Unix and Windows NT.

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NETSCAPE

WEB DATA WAREHOUSES



Continued from page 4

sible through it. Both should be operational by the end of the quarter.

Deere has had multiple SAS data marts up and running for more than a year on a Microsoft Corp. Windows 95 server that feeds OS/2 clients via a Novell, Inc. network. These applica-

tion-specific marts are culled from a varicty of mainframe legacy databases, providing access to financial and actuary numbers as well as corporate marketing, underwriting and human resources data. The biggest advantage to making these data stores available via a Deere intranet will be to provide

easier access to the 150 laptop-toting Deere salespeople who spend most of their time on the road, Kinman says. Later, he adds, Deere plans to allow direct hookups with company clients and suppliers.

Still, experts warn about making

the mistake of viewing the Web as a panacea for all your data access woes. One of them is Adrienne Tannenbaum, president of Database Design Solutions, Inc. in Bernardsville, N.J., an organization specializing in data-

base "revitalization" issues.

often an excellent idea, she says. Indeed, Tannenbaum claims one of the biggest motivations to making a warehouse available via the Web is to leverage the often hefty investments in data warehousing that have seem-

up access to it via a Web browser is

ingly come to little fruition. "A common complaint is that we've invested all these millions of dollars in this warehouse, but no one seems to know about it," she says.

WHAT'S ONLINE

For more on what

you need to know

before Web-enabling

your warehouse and

more hot picks: www.

computerworld.com/intranets.

Yet there are challenges to executing Web access, as even the enthusiastic Brough acknowledges. "It's hard sometimes to separate the hype

from what's real," he says. "But there's a lot of bright minds working on a solution, and we believe the kinks will all get worked out."

LaPlante is a freelance writer in Woodside, Calif.

Before Web-enabling your warehouse ...

Assess the success of your existing warehouse effort.

Define your target user population.

Ponder the security ramifications of opening up access.

Analyze the organizational implications of universal access.

> Simply Web-enabling an existing warehouse isn't going to solve all potential data access problems, Tannenbaum says. But where the data is already in electronic form, is reliable, is updated in a timely manner and is certifiably clean, then opening

Resources Resources Resources Resources Resources Resources Resources www.datawarehousing.com/fist.html

> **Data Warehousing Forum** MicroStrategy, Inc. www.strategy.com/msi_dwf1.htm

PUBLICATIONS Data Warehousing on the Internet

Thomas C. Hammergren; Thomson Computer Press, 1997

The Seven Deadly Sins of Data Warehousing Doug Hackney; Addison Wesley Longman, 1997

"Taking Data Warehouse Applications to the Desktop (But Whose Desk?)" Jill Oyche, Baseline Consulting www.baseline-consulting.com/bltocwp.htm

Corporate Internet Planning Guide Richard J. Gascoyne and Koray Ozcubukcu, 320 pages, \$29,95, Van Nostrand Reinhold, 1997. www.thomson.com/vnr/gascoyne.html

Building the Corporate Intranet BSG Corp., \$39.95. John Wiley & Sons. A 12-step guide to building an intranet, from deciding whether to go for it to implementing and managing it.

ASSOCIATIONS

The International Data Warehousing Association P.O. Box 2001, Andover, Mass. 01810 (508) 470-3880 www.idwa.org

The Data Warehousing Institute 9158 Rothbury Orive #200, Gaithersburg, Md. 20879 (301) 229-1062 (www.dw-institute.com)

CONFERENCES/SEMINARS DCI's Data Warehouse World Feb. 25-27, Orlando, Fla.; April 8-10, San Jose, Cafil.; April 15-17, Toronto. Digital Consulting, Inc. (508) 470-3880

1997 Data Warehousing Institute **Annual Conference** May 27-June 1, Chicago. (301) 229-1062

WEB SITES/NEWSGRDUPS Data Warehousing Information Center pwp.starnetinc.com/larryg/index.html

Data Warehousing on the Internet www.datawarehousing.com

Data Warehousing List Server

PROJECT: Monsanto Co.



onsanto Co. has been testing an intranet front end to its financial data warehouse since last June. The St. Louisbased chemi-

cal firm plans an enterprisewide rollout by year's end and, eventually, data warehouses with logistics and procurement information. For now, the intranet gives 20 financial analysts simple, fast access to information they need. "If the information you need for decision-making is right at your fingertips, then you can focus more time and effort on the analysis of the information," explains Bipin Junnarkar, director of knowledge management architecture at Monsanto. He provides further details of the project:

Why do it? To speed the delivery of financial information that must be sifted by Monsanto financial analysts prior to being given to decision makers.

How it works A user requests a report via a Microsoft Corp. Internet Explorer browser. A Silicon Graphics, Inc. (SGI) server passes the request to a MicroStrategy, Inc. DSS Web server running on a Windows NT machine. The server acts as an interface between the SGI server and a DSS server, which also runs on an NT machine. The DSS server then communicates with the data warehouse, which runs on an Oracle Corp. database on a Digital Equipment Corp. Alpha server.

What's different The intranet doesn't require the installation of client software on user

desktops. Also, traditional client/server data warehouses don't let users share data analysis. Eventually the intranet will, possibly via Lotus Development Corp.'s Notes.

Kinds of queries posted The MicroStrategy software restricts users to a standard report they can drill down into for more information. Ad-hoc queries can be made only with the existing client/server system.

> **Decisions** supported "A user might be trying to use the data warehouse via the intranet to look at all the costs

associated with product lines in different geographical areas. He or she might look at one product line and see how much profitability there is in Brazil and what the costs are of getting the product to market and compare that with the same thing in Australia or the Pacific Rim," Junnarkar says.

Measuring ROI

The firm decided at the outset that it would not justify the project based on its dollar benefits. Instead, it has pursued the project in the belief that its value to the company extends beyond data warehouse applications.

Technical challenges Security. Monsanto plans to have three levels of access on the financial data warehouse: top management, top executives in the business units and analysts in specific business units. No additional tools are required to set up the three tiers because all access is controlled at the

The company wouldn't disclose specific details. The data warehouse project is said to have had "significant cost." Intranet costs for the data warehousing project were not split out because the intranet is being built for other company uses.

Biggest surprises

database level of security.

How fast it was to install the application (two weeks) and how easy it is to use the warehouse via the intranet.

Advice

Develop an intranet business strategy for delivering and integrating data rather than jumping blindly into an intranet project because it's trendy. Enroll data warehouse users up front. Technology is evolving rapidly and looks promising.

WHAT'S ONLINE

Expanded Q&A, Real Audio with Bipin Junnarkar. www.computerworld.com/ intranets

> people really get to look at the data Alexander is a freelance writer in and try to make sense out of it.' Edina, Minn. Computerworld Intranets is published monthly on the fourth Monday of the month as a supplement to Computerworld. Editor: Anne McCrory; Art Director: Wendy J. Reifeiss; Assistant Managing Editor: Kimberlee A. Smith; Computerworld

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Bipin Junnarkar: The

major change is in how



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NETSCAPE

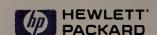


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MMX notebooks

NEC Computer Systems in Mountain View, Calif., has announced two notebook computer lines: the Versa 2600 with full multimedia features and the low-end Versa 2500. The Versa 2600 has a 133- or 150-MHz Pentium MMX chip and a 1.44G-byte hard drive. Pricing starts at \$2,399. The Versa 2500 has a 133-MHz processor and a 1.08G-byte hard drive. It costs \$1,999.

PC-based storage

Western Digital Corp. in Irvine, Calif., has announced Storage Data Acceleration (SDX), a new technology for increasing the performance of removable media storage peripherals such as CD-ROM drives. An SDX interface is used to connect SDX peripherals to all Western Digital Enhanced Integrated Drive Electronics (EIDE) hard drives. The connection is made via a 10-pin SDX cable instead of a 40-pin EIDE connector. Products should ship before June, according to Western Digital.

Intel adds video mail

Intel Corp. officials announced enhancements to ProShare videoconferencing products that allow video mail to be left on a desktop computer. The Hillsboro, Ore., firm said the upgrades to System 200 will cost \$179 or \$1,499 for a new user. Recording and playback of videoconferences will be possible with the software. That feature should be useful to global companies that work in multiple time zones.

Tape silo software

StorageCenter, storage management software from Software Partners/32, Inc. in Topsfield, Mass., now supports Storage Technology Corp.'s Automated Cartridge System Library Software (ACSLS). That means StorageCenter users can manage large-scale tape libraries found in major data centers that run StorageTek's Nearline tape systems. ACSLS support is a \$19,000 option to StorageCenter.

Cluster-ready RAID

Storage Dimensions, Inc. in Milpitas, Calif., is shipping the Super-Flex 5000, a cluster-capable RAID disk array for Sun Microsystems, Inc. Solaris server clusters. The product, which features dual RAID controllers, can be used with the Qualix Group's QualixHA clustering software. Pricing ranges from \$23,655 to \$36,555 for up to 54G bytes of data storage capacity.

NEW PRODUCTS

INTEGRATED TECHNOLOGY USA, INC. has announced CompuNet 2000, a PC keyboard telephone with Internet capabilities.

According to the Teaneck, N.J., company, the product can be used with Internet telephony software to let users call worldwide for the price of a local phone call. Internet phone calls can be conferenced

with conventional phone calls.

CompuNet 2000 costs \$239.95.
Integrated Technology USA
(201) 907-0344
www.iti2000.com

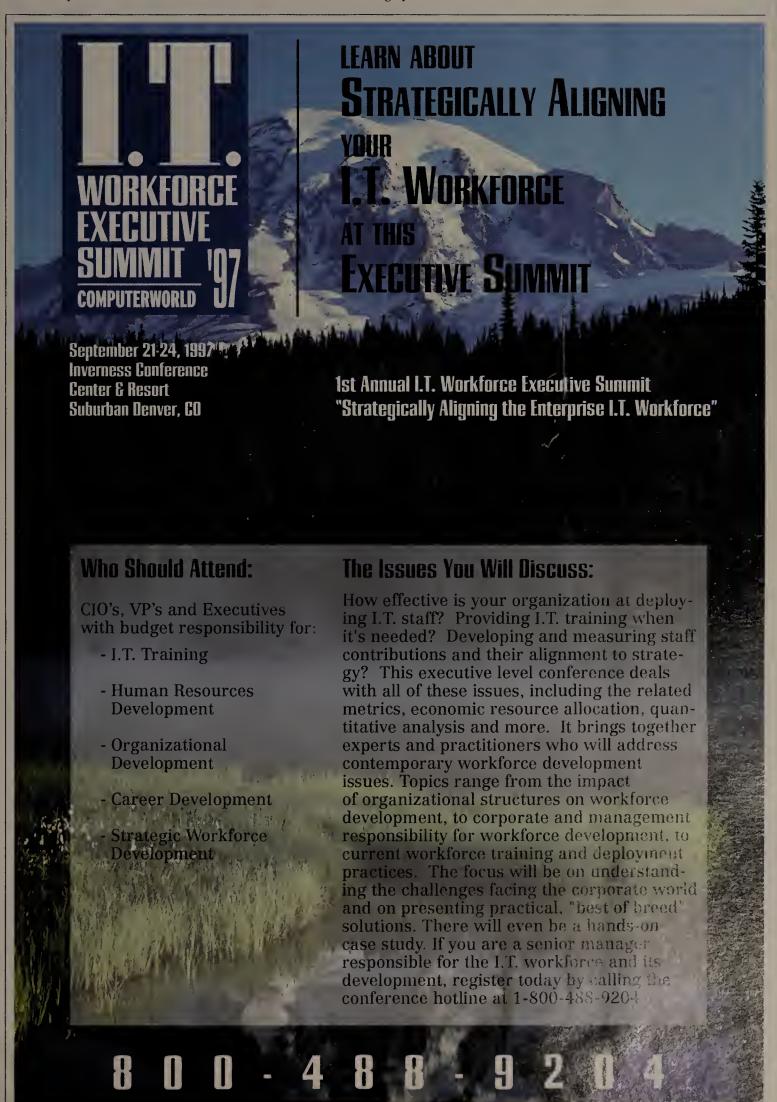
VINCA CORP. has announced Standby-Server Many-to-One for NetWare, a real-time mirroring product that lets

users protect multiple Novell, Inc. NetWare servers with one standby machine.

According to the Orem, Utah, company, the product provides flexibility for backing up data and saving space.

StandbyServer Many-to-One for Net-Ware costs \$6,999.

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Compaq P70 color monitors, starting
at \$899°, sold separately.



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166MHz Pentium processor and 1 GB HD.
(Monitor sold separately.)



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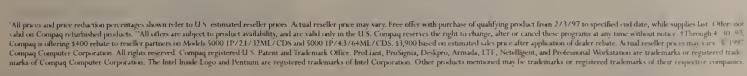


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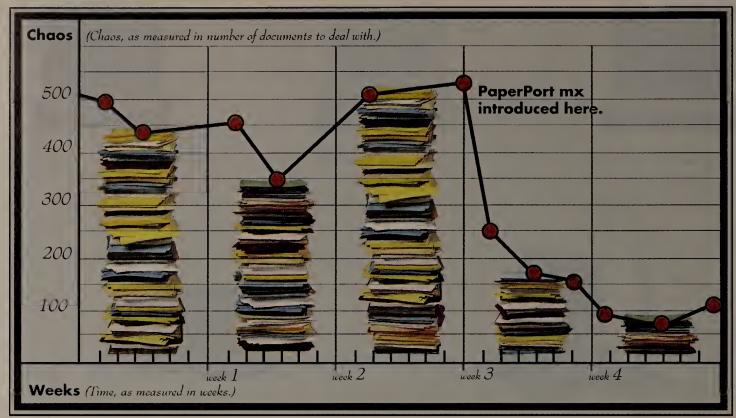
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THE BUSINESS STRESS-REDUCTION INDEX



Sharp drop in chaos; Analysts suspect new PaperPort mx.

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Ah, here's a bonus:
PaperPort mx can accomplish all of these things—without hogging space on your desk. It's sleek and small and fits right between your keyboard and monitor.



MANAGE TECHNOLOGY.

Here's a secret about how to get the technology you have to work harder. Say you want to send a fax. Scan in your document using PaperPort mx, then send a fax using your computer's modem. It saves time (you'll never again have to trek down the hall to fax something). And it's usually cheaper, to boot.

SIMPLIFY OPERATIONAL STRUCTURES AND SYSTEMS.

For instance, your archaic filing system. Instead, use PaperPort mx. Filing things digitally on your computer takes up far less space, but more than that, it helps you pinpoint a specific document later. Just type in a keyword, and PaperPort mx will retrieve it for you.

ORCHESTRATE THE PROGRAM FOR CHANGE.

Don't let its compact size fool you. PaperPort mx is tough enough for even the toughest business environment. For one, it's fully compatible with Windows NT. And at a new lower price, even the most stringent bean counters in your company will be pleased.



STAKE YOUR CLAIM

Worldwide data mining software revenue (Includes license and maintenance revenue)

| 1995 | \$54M |
|------|---------|
| 1996 | \$90M* |
| 1997 | \$123M* |
| 1998 | \$160M* |
| 1999 | \$200M* |

*Projected

Source: International Data Corp., Framingham, Mass.

Tracking competition

KnowledgeX, Inc. last week introduced "competitive intelligence" software designed to find hidden relationships among seemingly unrelated pieces of data. Officials at KnowledgeX in Atlanta said customers can use its namesake software to track and forecast competitors' moves or to find links among companies.

The software analyzes data such as news reports, news releases and documents filed with the Securities and Exchange Commission. KnowledgeX Solo single-user client costs \$995 and requires a Windows 95 PC with 16M bytes of memory. A workgroup version that runs off Windows NT servers also was announced. The software will ship this quarter.

Briefs Query tools yield 'net data

By Craig Stedman

DEVELOPERS OF desktop query tools are starting to deliver on promises to tie their software to the Internet so remote users can get at corporate decision-support data more easily. But most vendors are still months away from providing full browserbased querying.

PRODUCTS ON THE WAY

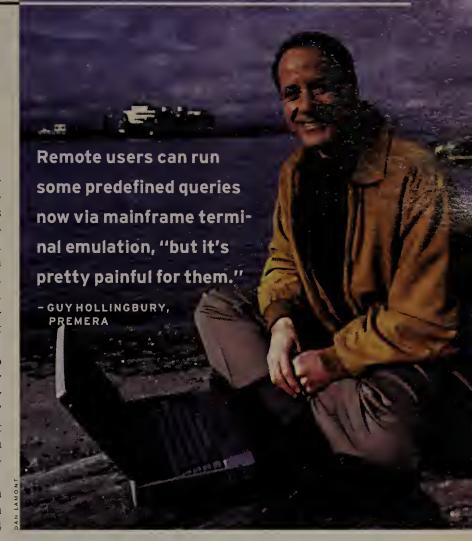
The products that are beginning to hit the streets are primarily static and enable end users to read canned reports via World Wide Web browsers.

That should be enough for some customers, but others said their remote users need the dynamic query capabilities that are

still to come. For example, Premera, a \$1.4 billion health insurance company in Seattle, wants to use the Web to spread decision-support tools to its field agents and external clients such as administrators at hospitals. But canned reports alone would be too restrictive, said Guy Hollingbury, a technology specialist

"It's not always possible to think in advance about what our users want to look for and how they want to slice and dice it," Hollingbury said. "We don't want to put any roadblocks in their way [by just providing static reports].'

Premera is putting together a Web infrastructure and then Ties to 'net, page 54



Start-up vows: One interface, all databases

By Lisa Picarille

TOPTIER, INC. is trying to streamline the process of letting users access disparate corporate databases from one user interface. The San Jose, Calif.-based start-up software company unveiled its TopTier family of products earlier this month at Demo

Users can

drag, drop

information

over the

internet.

97 in Indian Wells, Calif.

The TopTier products will let users access a variety of database information via the

Internet, the World Wide Web or a LAN without having to Start-up, page 54 HP helps call centers pull in queries from 'net

By Jaikumar Vijayan

HEWLETT-PACKARD CO. has announced an enhanced version of its Customer Contact Manager middleware that integrates the Internet with telephony-based customer service offerings.

Service businesses such as banks, financial institutions and health care organizations can use the software to receive and resolve customer queries as easily over the Internet as they can via telephone, officials at Palo Alto, Calif.-based HP said.

ANOTHER OPTION

For example, bank customers can use their institution's World Wide Web page to look for account information and make cash transfers. When they want more information or need assistance filling out a form, they can click on "call me now," fill in the required call-back information and click on "submit."

HP's new middleware routes

HP's Customer Contact Manager 4.0

What it does: Integrates telephony-based customer service on the Web

What it means: Customer queries can be received and resolved as easily over the Internet as they are over the phone

How It works: A customer's query from the Web is routed to customer service representatives, who then contact customers via telephone, Internet Relay Chat or Internet phone

requests to a customer service representative, who can contact the customer via conventional phone, Internet Relay Chat or Internet phone.

Such a capability is important for organizations that see the Web as a new channel for pro-Call centers, page 54

FRANKLY SPEAKING

FrankenGates and Scott-ula

FRANK HAYES

TAR WARS, that epitome of high-tech heroics, is back again. And no doubt the folks t Microsoft and Sun Microsystems are daydreaming about blasting away at the competition's Death Star whatever that happens to be.

But from the way they're treating Java users, you'd think Microsoft's Bill Gates and Sun's Scott McNealy have been watching old monster movies instead.

Microsoft, taking its cue from Frankenstein, has stitched together its own version of Java using



pieces it dug up from Visual Basic and Windows. Lightning strikes at midnight. Dr. FrankenGates declares, "It's alive!" and the monster does indeed come to life.

Trouble is, just like in the old movie, this FrankenJava couldn't be mistaken for anything but a freak once it gets into the light of day. It runs

some Java programs that shouldn't run. Certain basic Java features don't work properly. And it has grafted-on elements such as ActiveX that won't

Frankly Speaking, page 54

Ties to 'net delivered

CONTINUED FROM PAGE 53

will wait for Toronto-based Speedware Corp. to deliver a full thin-client version of its Esperant query tool, Hollingbury said. Giving hospitals and doctors querying abilities is critical as Premera moves to the managed-care business model, he

added. "We need to help them control costs, or they're going to go out of business pretty quickly," Hollingbury said.

TOOL PARADE

Brio Technology, Inc. in Palo Alto, Calif., broke out of the vendor pack first by delivering an interactive Web version of its query and reporting software in November [CW, Nov. 11]. But others are starting to respond.

IQ Software Corp. in Norcross, Ga., last week announced a version of its IQ/LiveWeb tool that frees users from having to manually code the programs needed to put a Web browser face on reports. That will ship in March, and ad hoc query support will be added in June, IQ Software officials said.

Also last week, Cognos, Inc. in Ottawa started beta-testing a release of its Impromptu software that provides Web access to reports. Impromptu 4.0 is due to ship in late May and will be followed late this year by full querying from a browser, Cognos officials said.

Business Objects, Inc. in San Jose, which already supports static report viewing in its namesake software, plans by midyear to introduce a Javabased interactive query tool for the Web. Speedware officials

said the company expects to deliver a readonly Web tool by midyear

and full thin-client code late this year.

The Canadian Agriculture Ministry hopes to use Cognos' upcoming Web-based tools to enable federal and provincial government officials to run queries against data from an income protection program for farmers and other agricultural producers.

Queries get funneled through information systems now and can take a week to run, said Mark MacIver, a technical architect for the Winnipeg, Manitobabased department that manages the program. Web-based queries "would be faster for the users, and we wouldn't have to tie up our programmers writing all these reports," he said.

Call centers can pull in 'net

CONTINUED FROM PAGE 53

viding customer service and contact, analysts said.

"What we are seeing in the customer support area is the desire to use multiple means of contact" with the customer, said Hugh Bishop, an analyst at Aberdeen Group, Inc. in Boston.

"It used to be that you had to go to a store directly if you wanted support. Then people started offering service over the telephone. Now they want to augment that with the Internet," Bishop said.

Blue Cross of California plans to use the customer service software. The company is upgrading its call centers to let doctors and clients get the same kind of service over the Internet that they get via the phone, electronic mail and fax.

"We are taking the same functionality that is available in our voice response units and putting it on the Internet," said George Steinhoff, vice president of group systems at Blue Cross in Woodland Hills, Calif. So, Blue Cross customers who want

health care eligibility information over the Internet will find the same menu of instructions and receive the same assistance they would via phone.

Until now, middleware such as HP's Customer Contact Manager allowed service organizations to integrate and manage only telephony access with customer service applications and databases.

Using such middleware, customer service centers could tie together things such as automated voice response units and automatic call distributors with customer service applications and databases.

The capability lets service centers receive calls automatically and route them and complete account histories to customer service representatives. With the new version of Customer Contact Manager, HP has extended the same capability to the 'net.

Customer Contact Manager 4.0 is available now and costs between \$85,000 and \$3.5 million.

Frankly speaking

CONTINUED FROM PAGE 53

run everywhere Java runs.

Then there's Sun, which has finally risen from its crypt with a thirst for blood — or at least for a profit from Java.

After a year of giving Java away, Count Scott-ula has decided to put the bite on the one group of people who are still waiting for a decent Java implementation: users whose PCs aren't powerful enough to run Windows 95.

At a time when the rest of the industry is giving away Web browsers, operating systems, windowing environments and software components, Sun has decided its new Java for DOS will cost \$100. Or maybe \$200 or \$500 — it all depends who you ask. But it's a price stiff enough to drain dry most users' interest.

If all this was just industry

politics, it wouldn't matter. But the people getting stuck with the extra work — and the bill from this monster madness are in corporate IS departments.

When Microsoft refuses to fix the bugs in its patchwork version of Java, corporate software developers either have to code around the bugs — which takes more time and effort — or write off products such as Microsoft's Internet Explorer Web browser and Visual J++ Java development environment.

When Sun jacks up the price on Java for DOS, IS shops have to choose among slow Java, no Java or busting the budget — whether that means buying Java for DOS, new Java-based network computers or new PCs to run Windows 95.

Is this stupid? You bet. Both of these vendors have forgotten

that their customers have choices. Netscape is still Microsoft's worst nightmare — Netscape's Java is fast and reliable without the Microsoft version's homegrown bugs.

And Sun's greatest horror is that Microsoft's ActiveX will turn out to be more popular than Java — which it doubtless will be if Java gets too pricey.

Maybe Dr. FrankenGates and Count Scott-ula should remember one other feature of those old monster movies: the torchwaving crowd of angry villagers who storm the castle and wipe out the monsters.

That mob of peasants doesn't make for a big, shiny finale like *Star Wars* has. But it's a little more realistic than fantasies about blowing your competition to smithereens.

In the end, users — especially angry users — will get their way.

Hayes is Computerworld's staff columnist. His Internet address is frank_hayes@cw.com.

Start-up vows: One interface for many databases

CONTINUED FROM PAGE 53

know where or in what format the data resides.

Using TopTier's TCP/IP-based HyperData Transfer Protocol, users can drag and drop information between databases over the Internet, thus facilitating the searching and management of information.

One user said TopTier acts as a middleware layer for creating large-scale systems, which lets his company develop applications for its clients more quickly.

"We can create the applications once, develop once and deliver on a full range of platforms," said D. Midian Kurland, principal scientist and director of engineering at the Enterprise Education group at Computer Curriculum Corp. in Sunnyvale, Calif. Computer Curriculum is a division of publisher Simon & Schuster, Inc.

"In our case, we see it as a way to build new applications for school districts. But TopTier also allows us to accommodate the wealth of legacy data that schools have," Kurland said. "In the past, it was horrendous to give end users access to the many data types across their enterprise. [TopTier] doesn't make some of the hard work go away, but it gives us a big leg up on integrating new applications and

AT THE TOP

TopTier: Enterprise Builder is an Internet database that lets corporate users do the following:

- Navigate all corporate databases without knowing where data resides
- View and search database information from one interface
- Drag and drop information between databases
- Integrate departmental applications in one accessible system
- Access database information from Macintosh or Windows clients

old stuff." Although TopTier simplifies the way end users query a database over the Internet, that capability also has limits, said Rich Finkelstein, president of Performance Computing, Inc., a consulting firm in Chicago that specializes in client/server and Internet technology.

"They are bringing end users usability in the form of drag and drop," Finkelstein said. "While there is merit to using that paradigm, there are also limitations. For complex user queries, [corporate] developers may have to write back-end code; there are a lot of complex things that drag and drop cannot accommodate. The product makes simple things even easier, but users should know that there are limitations to the paradigm, and it's not appropriate for all tasks."

The TopTier products are currently being beta-tested and are due in the second quarter. Pricing hasn't been determined.

The TopTier line includes the following products:

- ■TopTier:Enterprise Builder, a development environment that lets application developers create a single layer that resides on top of databases. The applications created can be deployed across the Web on desktops and multiple servers.
- ■TopTier:Navigator, a client data access application that lets Macintosh and Windows users navigate multiple databases by offering one user interface for viewing and manipulating data over a network.
- ■TopTier:Model Transporter, a utility that lets developers convert databases into TopTier applications that can be searched.

PowerQuest's Partition Magic utility lives up to its name

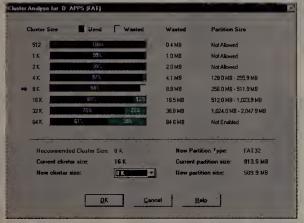
By Esther Schindler

REPARTITIONING a hard disk with the DOS FDISK utility can eat up a whole day: You have to back up the drive, run FDISK, format the partitions and restore the data. PowerQuest Corp.'s Partition Magic 3.02 can do this chore in as little as 10 minutes.

Partition Magic is a cross-platform utility that helps users dynamically modify hard disk partitions. With it, cluster sizes can be minimized to save space; a system can be rearranged to add a second operating system; or a computer can simply be reorganized. Partition Magic resizes, moves or hides partitions; creates new partitions; and con-

verts partitions from File Allocation Table (FAT) structures to OS/2 High-Performance File System (HPFS) structures on

Partition Magic 3.02 adds several features. IBM's Boot Manager is now included, which makes it easier to use multiple operating systems. The contents of one partition can be copied to



Partition Magic's analysis tool examines drives and recommends proper cluster sizes

another. A Windows Uninstaller Mover can be used to change drive letter assignments (for exam-

ple, if one partition is divided in two) and to modify references to applications now on another partition. A new cluster analyzer tool examines FAT drives and recommends the appropriate cluster size. And FAT, 32-bit

> FAT, Windows NT File System (NTFS) and HPFS partitions can be created, resized and moved.

> Partition Magic lived up to the promises printed on its box. Even the manual is clear and easily understood one of the best I've seen. The documentation assumes the user doesn't know how operating systems manage hard disks. It pa

REVIEW

Partition Magic 3.02

\$69.95 PowerQuest Corp. Orem, Utah (801) 226-8977 www.powerquest.com

Pros: Quickly and efficiently resizes, moves, and creates disk partitions. Copies partitions for backup, migration or other purposes. Supports File Allocation Table, High-Performance File System, Windows NT File System. Has excellent documentation.

Cons: Limited support for Linux and NetWare partitions. No real enhancements to directly benefit OS/2 users.

tiently explains basic concepts but doesn't talk down to techies. This package can be handed to a relatively inept user without fear of disaster. (Of course, always do a full backup before starting. Nothing is perfect.)

The documentation might not be needed, however, because Partition Magic's user interface is so straightforward. Right-click on a partition to get a menu of functions; drag the edge of a partition to resize it.

Starting with a new computer set up with multiple operating systems, I used Partition Magic to reorganize the system. I changed the partitions for the operating systems, and created and resized partitions for my data. I decided to add an NTFS partition to experiment with.

If I had to do all this manually using FDISK and tedious tape backup/restore iterations, it would have taken a week. The entire process took a couple of hours, and that's only because Partition Magic gave me so many options and tools that I felt compelled to experiment with all of them. If I hadn't experimented so much, I would have been completely finished in about an hour.

OPERATING SYSTEM WOES

Partition Magic runs in OS/2, DOS or in the DOS mode included with Windows 95. But it doesn't run in Windows NT, and OS/2 doesn't permit changes to partitions that are in use. But Partition Magic can modify NTFS and HPFS partitions when you start the program from DOS.

To adjust my OS/2 system partition, I had to boot from a diskette or use Partition Magic from another operating system

Taken on its own, that might not be too much of a problem. But because Windows NT insisted on formatting my (OS/2 HPFS) C: partition, I had to reinstall OS/2.

For users who have worked with earlier versions of Partition Magic and use multiple operating systems, this is a no-brainer upgrade. This utility makes it breathlessly easy to install multiple operating systems.

This version isn't for everyone, though. OS/2-only users who have an earlier version of Partition Magic may wish to skip this upgrade; they won't find enough new functionality to make it worth the cost of the upgrade.

Linux and NetWare users may be disappointed to note that, while Partition Magic recognizes and can move their file systems, it can't resize them.

Schindler is co-author of Teach Yourself Rexx in 21 Days and author of The Computer Speech Book. You can reach her at escher@primenet.com.

Java environment targets business applications

By Sharon Gaudin

VISIX SOFTWARE, INC. has produced a Java development environment that goes beyond spinning coffee cups, applets and the client.

Visix, a Reston, Va.-based C and C++ development tool company, is moving its focus to the Java arena with Vibe, a Javabased application development environment with extensive class libraries, widgets and visual control tools.

Vibe is expected to open the door for Java to enter corporate application development. This area has long been ruled by C++ because of that language's maturity and ability to support applications built for three-tier client/server systems.

"They're going in the right direction," said Jeff Barr, president of Vertex Development, a user interface design and development company in Potomac,

Visix is "making Java usable," Barr said. "Too many development environments just say, 'Here's the language.' Vibe gives you stuff like visual control of subclassing. That's just busy work, and it does it for you."

Vibe, which is due to be released at the end of the month, uses class libraries that Visix developed for C++ and moves them to Java, Visix officials said.

Vibe also allows developers to build applications in Java on the middleware tier. Pricing for the product isn't available yet.

Barr said the ability to build Java applications on the middleware tier is important. Vibe will give developers the flexibility to build applications using Java on the client side, the server side and on the back end, such as using an Internet server, he said. "I've built applications with [Vibe] that I wouldn't have attempted with raw Java. I needed Visix's quality display and direct access to graphics" to do the work, he said.

Mitch Kramer, an analyst at Patricia Seybold Group in Boston, said Vibe "is not a dinky little toy."

"Visix knows how to create portable cross-platform [products | so things get resized appropriately on different platforms," Kramer said. "And that has been the fundamental problem with Java. Sure, you can move that Java application to another platform, but things get rendered differently depending on whether it's on Windows or Motif or [Macintosh]."

Kramer contrasted Vibe's flexibility with Visual Cafe from Symantec Corp in Cupertino, Calif. Visual Cafe builds Java applications only at the client level.

Vibe's added capabilities make it stand out, said David Kelly, an analyst at Hurwitz Group, Inc. in Newton, Mass.

"From a business perspective, they're giving developers the choice of Java vs. C or C++," Kelly said. "Before, there wasn't any choice. It was C or C++. Visix is addressing that by combining its expertise with a rich library and development environment."

0 D UC NEW

TOUCH 'N GO SYSTEMS, INC. has announced Corporate Edition software to keep track of employees anywhere in the world.

According to the Anchorage, Alaska, company, the software makes it possible to touch a single computer key and instantly determine the location of every employee in a 4,000-person network.

It operates on all major PC network operating systems and any Windows workstation.

The software costs \$449.95 for permits to track 200 workers in 10 departments. It can be expanded.

Touch 'N Go Systems (907) 264-6333 www.touchngo.com

CAPSOFT DEVELOPMENT CORP. has announced HotDocs Pro, a professional developer's version of the company's document automation software.

According to the American

Fork, Utah, company, the product was designed to help users involved in automation and distribution of official forms.

Users create a template by identifying information in the form or document that changes each time the document is used.

When the template is used, the product asks for answers to the variables and creates a customized form.

HotDocs Pro costs \$399. Capsoft Development (801) 763-3900 www.capsoft.com

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AIM at I1

Bell Atlantic Corp. in Philadelphia plans to roll out a T1 Asynchronous Transfer Mode (ATM) service by year's end. It will be priced at about \$500 per month. Although other Baby Bells offer ATM at Ta speeds of 1.55M bit/sec., the price is typically higher and is delivered on a case-by-case basis. Using T1, network managers can avoid buying a more costly T3. If it is priced right, T1 ATM can save money when connecting branch offices that don't demand higher bandwidth applications. Bell Atlantic's T1 ATM service will be available in some cities in the fourth quarter.

<u>Measuring workflow</u>

The Workflow Management Coalition industry group has published a specification for gleaning performance information across multiple workflow systems. The Audit Data Specification defines the performance data to be recorded by the workflow engine and a consistent format in which to display the information.

WHY EVERYBODY'S MOVING

Ongoing annual costs of

File-sharing mail system:

\$7.37M

Client/server mail system:

Base: 20,000 users. Includes software, administration, system integrity and support costs.

Source: Rapport Communication, Washington

Wang expands alliance

Wang Laboratories, Inc. in Billerica, Mass., last week announced an expanded alliance with Microsoft Corp. that seeks to improve Wang's multinational support options. Through Microsoft's Service Advantage program, Wang will boost service offerings in several areas: migration to Microsoft BackOffice and other platforms, network design/ integration, installation of Microsoft messaging and help desk support.

Briefs Phone hackers dial up trouble

► 'Phreakers' play havoc with voice mail, run up phone charges

By Sharon Machlis

YOU MAY HAVE everything from firewalls to antivirus software and encryption protecting the data on your computer

But what about your telephones?

Last April, the New York Department (NYPD) found out the hard way that voice mail also is vulnerable to attack when hackers broke in to

the police system one night and changed the message that greeted callers. The new recording said officers were too busy eating doughnuts and drinking coffee to answer the phones. It directed callers to dial 119 in an emergency.

And the NYPD, which declined to comment on the incident, isn't alone.

"It never even occurred to us that people would be trying to break in to a voice-mail system,"

said software developer Chris Bartram, who works for a small East Coast company. But a "phone phreaker" recently used the firm's toll-free number to get in to voice mail. The hacker, "Shadow Runner," set up mailboxes for himself and friends to use as toll-free message centers — and even advertised the service on the Internet.

Bartram's company found out about the scam last month Phone hackers, page 63



Program supports remote access outsourcing

By Bob Wallace

BELL ATLANTIC Network Integration, Inc. (BANI) last week announced a remote access outsourcing package that provides equipment and handles ISDN service, project management and one-day equipment replacement.

The Frazer, Pa., integrator's program was designed for users who are beset by multiple networking projects and are strapped for the resources needed to roll out internal remote access systems.

"We had someone abandon our remote access program, which was then assigned to me," said Frank Meza, a senior systems analyst at Paramount Pictures, Inc. in Hollywood — BANI's beta customer. "But I already have lots of projects before me, and I don't have the resources to handle this effort."

Analysts said Meza isn't

"There's definitely a trend toward outsourcing remote access, and BANI has done a solid job articulating program benefits to users," said Ellen Carney, director and principal analyst for network integration and support services at Data-Remote access, page 63

Remote access program

- → Provides: Design and construction of remote access network including equipment and ISDN service
- → One-time price: \$1,200 to \$2,000 per seat
- → Equipment fully supported: **Ascend and Gandalf**
- → Security: Supports third-party security products
- → Turn-up interval: 5 to 7 days, excluding ISDN arrangements

Source: Bell Atlantic Network Integration, Inc., Frazer, Pa.

Exchange

MESSAGING SYSTEMS

migration lessons

By Barb Cole

ALTHOUGH IT is billed as easy to deploy and manage, Microsoft Corp.'s Exchange actually requires a lot of up-front planning, according to many users at large Exchange sites.

Before beginning to deploy Exchange, companies should determine how many users they can put on a server and how those servers will connect to transfer mail and replicate directory information and public folders, users said. And although the well-documented scalability issues of Exchange have focused on the 16G-byte mail storage limit, users said scalability is also tied to the way Exchange servers are hooked together.

Enhanced screen Work Group Project Image Editor Deploy Help saver aims to push data, too Screen Saver Name: My screen saver Lets IS put messages

on idle terminals

By Patrick Dryden

softreach, inc. has enhanced its LAN-based screen saver to give managers from intormation systems, training or human resources departments a more flexible and immediate way to nag networked users.

The Herndon, Va., vendor last year launched NetReach, which centrally controls images displayed on idle PCs throughout any network. Some organizations that had derided individ-

Alen Status: Active Sales meeting at 4:00 today! Open Work Group (Open Project (Active Screen Sever) Work Group Alen Stides Sounds intervals ward bmp oicnic mov (no sound) earnings po neadqtrs.gil (no sound) Start NetReach Console

A new version of the NetReach tool lets managers broadcast bulletins across sanctioned screen-saver messages

ual screen savers as wasteful liked the ability to distribute Hallmark-style scenes with positive messages about teamwork,

for example, or reminders about safety, corporate policies or various procedures.

Screen saver, page 61

CHAIN GANGS

"Lots of companies started chaining a bunch of [Exchange] servers together but found that it was hard to move users [among servers] and support mobile users," said Ken Rider, a senior manager of advanced messaging services at MCl Communications Corp. in Colorado Springs. MCI will eventually migrate most of its 45,000 users to Exchange.

Exchange, page 61

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this works for everybody.

Screen saver

CONTINUED FROM PAGE 59

NetReach allows managers to broadcast memos and other immediate information networkwide or to users in specific departments.

"Since everyone here does more than one job, I'm trying to put in a tool to help them keep current," said Gary Sewell, who manages IS and customer service at Mitsubishi Automotive Electronics Group in Plymouth,

Customized screens in the NetReach library urge 70 local users to complete survey forms needed to document business processes to earn the auto industry's Quality System 9000 certification.

But they need prompting from "the mother hen" about other responsibilities, Sewell said.

NetReach 3.0 can scroll text messages across the bottom of its static screen displays.

Sewell said he wants to broadcast a variety of information, such as meeting reminders, news about promotions and training classes and bulleted instructions "to get users to clean out their E-mail."

Tools from PointCast, Inc. in Cupertino, Calif., and other vendors can push information from Internet content providers or from corporate intranet managers to users. But Sewell said he prefers local content control at the LAN level to maintaining and managing Internet or intranet connections. And NetReach is "a universal system available right now," Sewell said.

SoftReach officials said they plan to extend NetReach from LANs to the Internet or corporate intranets so managers could distribute information to each user's World Wide Web browser. Other planned options include support for stand-alone PCs and for sending video clips.

NetReach requires one control console per site, available for \$200, plus user licenses sold in increments of 10 for \$80.

Exchange migration

CONTINUED FROM PAGE 59

Rider said a better design is to have the servers connect to a messaging backbone that handles message transfer, directory synchronization and data replication. In MCI's case, that backbone will be based on the Internet's Simple Mail Transport Protocol (SMTP).

"Down the road, we may even bring up a dedicated server for Usenet news."

- Lance Speelmon, **Indiana University**

Users said predicting the number of users per server isn't difficult, given the mail storage limits. A pilot project with several hundred users will reveal the magic number, which usually ranges from 200 to 500 users per server, they said.

Companies eyeing Exchange

will also want to carefully consider the number of sites, or groupings of servers, they set up, users said. For example, Shell Oil Co. in Houston originally planned to have more than 100 sites as part of its companywide Exchange migration. Several months into the project,

however, Shell trimmed the number of sites to five to make it easier to keep them synchronized.

NEW THINKING

Users also have had to rethink the traditional approach of having one giant server to handle mail, folders and gateways. "With a

general-purpose server, you can't tune performance for any one group of users," said Lance Speelmon, senior messaging specialist at Indiana University in Bloomington. The university will have separate servers dedicated to handle messaging, public folders and links to

SMTP mail systems for its 1,000 users. "Down the road, we may even bring up a dedicated server for Usenet news," Speelmon said.

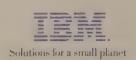
Mike Schmidt, information systems director at Heritage Broadcasting Group in Tustin, Mich., an operator of television stations, said it is wise to put public folders on a server other than the one that handles E-mail traffic. "It allowed me to fix things [in the public folders] without bringing down E-mail services," he said.

The pace of migration has largely depended on whether the company is coming off a mainframe-based system, a LAN mail package or Microsoft Mail. Users who still have multiple messaging systems have to maintain gateways to keep messages flowing among the different systems.

Host-based messaging users are more likely to depend on shared calendars and therefore must be moved as a group, users said. Microsoft advises Microsoft Mail users to move all users in a post office at the same time.



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Phone hackers dial up trouble

CONTINUED FROM PAGE 59

when a woman called to ask about its free voice-mail service. She apparently didn't know the deal was a hack attack. "We were flabbergasted, to say the least," Bartram said.

The company subsequently found that 17

mailboxes had been assigned by Shadow Runner.

The firm was an easy target because of its new phone system from Samsung Telecommunications America in Miami. It was installed by a reseller that left it containing about 100 unused mailboxes with factory-set default passwords.

Hackers regularly swap information about such preset passwords and then look for systems where those passwords haven't been changed.

"They trade this information like I used to trade baseball cards," said Walt Manning, a former Dallas police officer who is a principal at TCS Associates, a security consulting firm in Plano. Texas.

Hacking instructions are even posted on World Wide Web sites, such as an article in the online magazine Phrack about how to break in to

TELEPHONE Meridian Mail sys-(www.fc.net/ tems

phrack/files/p47/p47-15.html).

Several top corporate security officials said they still believe potential damage to computer networks is more worrisome than voice-mail hacking. "[Phone message security has] been an interest of ours, but it's not a high priority," said Ted Combs, manager of computer security and records management at AlliedSignal, Inc., a manufacturing and technology company in Kansas City, Mo.

Bartram said his company is out only a few hundred dollars in long-distance charges from the attack. But telecommunications security analysts warned that the consequences can be considerably worse.

Other phreakers have left profane outgoing messages or run up huge international phone bills at companies that let employees who are on the road dial a toll-free number to access the company system to place outside calls.

COSTLY INTRUSION

"We had a client who lost \$4.5 million over a three-day period" when the hacker who penetrated one system broadcast the information across the Internet, Manning said.

After a telecommunications system such as Meridian Mail is installed, security consultant Ed Shuck at Visual Traffic in San Francisco advised, managers should immediately change "every password they can get their hands on. ... Don't even wait for the door to hit the guy on the butt as he's leaving. Because the hackers are going to come."

Remote access

CONTINUED FROM PAGE 59

quest in Westboro, Mass.

Paramount plans a remote access system that will eventually support 5,200 far-flung execu-

Other users who have already begun to support remote access using Integrated Services Digi-

tal Network (ISDN) expressed

interest in the BANI program. "I'd be very high on outsourcing remote access, mainly because of the high cost of the staff resources to support a program," said Barbara Maaskant, executive director of information services at the Roberto C. Goizueta Business School at Emory University in Atlanta.

Carney said BANI will face stiff competition from AT&T Solutions in Basking Ridge, N.J., and Lucent Technologies, Inc. in Murray Hills, N.J., both of which have recently announced similar programs.

For now, BANI provides full technical support only for remote access gear from Ascend Communications, Inc. in Alameda, Calif., and Gandalf Technologies, Inc. in Nepean, Ontario, and doesn't yet have a security service.

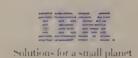
The soup-to-nuts approach of BANI's program, which includes the labor-intensive job of ordering, provisioning, installing and testing ISDN lines nationwide, is part of what attracted Paramount.

"The BANI program works well for us because they handle everything," Meza said. "I haven't had to talk to the phone company once, which is great, because I'm too busy to handle ISDN line coordination with multiple telephone companies."

But quoting the time needed to get the equipment in and an ISDN line installed and online is inexact. BANI officials said it takes five to seven days to get the service, but that doesn't include the time needed to arrange for ISDN connections.



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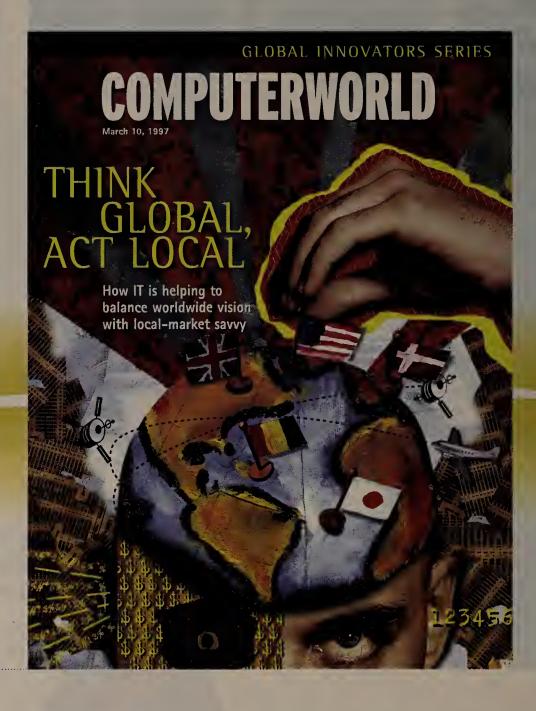


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Mobile users eye smart phones

By Mindy Blodgett

HANDHELD communications and computing devices, including those that run Microsoft Corp.'s Windows CE operating system, have captured attention in the mobile world during the past year.

But smart telephones are starting to compete for center stage. The Wireless Services, Wireless Data Division of AT&T Corp. last week announced a business service for the AT&T PocketNet phone slightly less than a year after first introducing the smart-phone device.

The products, which were recently beta-tested, are available for corporate customers, AT&T officials said. They will be available for retail sale later this year.

Smart phones are digital/cellular telephones that enable voice and data transmissions, including voice mail, electronic mail, wireless Internet and intranet access, paging and fax capabilities.

Dataquest in San Jose, Calif., estimates that about 15,000 smart phones will be sold this



and paging

Cellular voice

year and that 2.4 million will be sold in 2000.

In addition to AT&T's offering, other smart phones are expected in the coming months, including releases from Ericsson, Inc. in Richardson, Texas — which has licensed the Geos 3.0 operating system from Geoworks in Alameda, Calif. — Mitsubishi Wireless Communications in Sunnyvale, Calif., and Nokia Mobile Phones in Sausalito, Calif.

The Palm Computing Division of U.S. Robotics Corp. in Skokie, Ill., also plans to add cellular voice communications to its personal digital assistant, the Pilot, observers said.

ALL IN ONE

Mel Ettinger, vice chairman and chief operating officer at Applied Graphics Technologies in New York, has been testing the PocketNet phone for three months. About 12 users in a pilot project at the company, which provides digital imaging

and archiving services for publications and advertisers, are using the devices for immediate access to the company's E-mail system, Ettinger said.

"So far I'm really impressed," he said. "You can get messages and send messages, send faxes and check your E-mail. And to have the cellular voice capabilities means that I see this device replacing the pagers and cellular phones we currently use, because now you can do it all in one device."

Having instant access has helped sales representatives give up-to-date sales information to customers, Ettinger said. Craig Mathias, an analyst at Farpoint Group, Inc. in Ashland, Mass., said the initial users of these devices will be in vertical markets such as sales force automation and dispatching. He added that if prices drop on the devices — the PocketNet currently sells for about \$500 — usage could become widespread.

But industry observers point out that the PocketNet phone is currently available on Cellular Digital Packet Data, a wireless data communications network with limited availability. That could limit the adoption of the device, the observers said.

NEW PRODUCT

CALCOMP has announced Ultra-Slate, a graphics tablet for PC and Macintosh users.

According to the Anaheim, Calif., company, UltraSlate works with pen-based applications, allowing users to add handwritten notes to documents and faxes. It can be used with character-recognition software and for capturing signa-

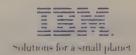
tures electronically for faxes and other documents. Drawing surfaces are available in two sizes: 4 by 5 in. and 6 by 9 in. A pen, pen holder and driver software are included.

The two models cost \$165 and \$340.

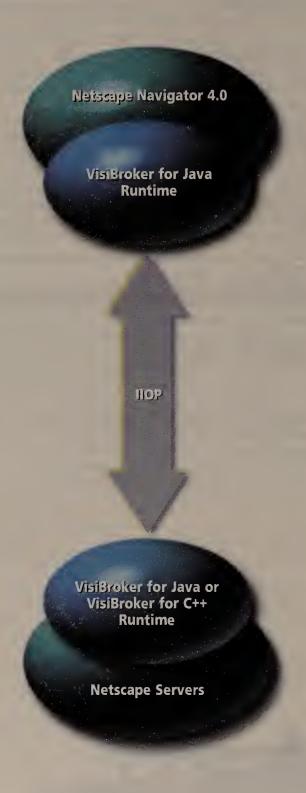
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THE LEADING JAVA ORB



"Netscape To Integrate Vision Integrate Vision Integrate Vision Into Products Into Platform" - Netscape Communications July 30,1996

We've all read the headlines about Netscape^a and their commitment to providing the most advanced technology for the Web. The story behind the headlines: Netscape is using Visigenic's object request broker technology to enable Netscape ONE^a to support the Internet Inter-ORB Protocol (IIOP) — the standards-based way your Java applets and distributed application objects will link together to create powerful business applications for the Internet and Intranet. ▼ So why turn to Visigenic? Because nobody knows more about IIOP and ORB technology for the Web. After all, Visigenic, a pioneer in distributed object technology, developed the first Java ORB, and was the first to commit to IIOP. There's more. With VisiBroker for C++ complementing VisiBroker for Java, you can link application objects from both your enterprise and Web servers. ▼ The real news here: develop with VisiBroker today and be ready to take advantage of the VisiBroker runtime that will be part of the upcoming version of the world's most popular Web browser. To contact Visigenic call 1-800-800-0361, 1-415-312-7197, or e-mail info@visigenic.com.



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IBM adds Java support to OS/2 Warp

By Laura Di Dio

IN A BID TO stay competitive in the Internet race, IBM recently announced it will support Java Version 1.02 across its OS/2 Warp and Warp Server product line

The support for Java 1.02 will boost performance of Java-based applications that run on the OS/2 platforms by as much as 60%, depending on the application, IBM executives said.

"This should help us stick with the OS/2 Warp platform."

- Warren Huffty, Louisiana DOT

Users and analysts said expanded Java support will let information systems managers deliver business content and applications on intranets and over the Internet to browser- and nonbrowser-based systems.

"The more businesses [that] deploy Web-based applications, the greater the requirement for platform-independent development," said Dan Kusnetzky, an analyst at International Data Corp. in Framingham, Mass.

Support for Java 1.02 on the OS/2 Warp and OS/2 Warp Server platforms also means corporate users can preserve their investment in older versions of OS/2 such as Version 3.0 and OS/2 Warp Connect.

The Java support includes OS/2 Warp 4 and OS/2 Warp SMP (symmetrical multiprocessing).

Java support was previously available only on OS/2 Warp 4 clients.

Besides boosting performance and throughput, the support for Java 1.02 improves security and graphics capabilities. It provides tighter network security policies to protect TCP/IP addresses and host names, which keeps them within the enterprise firewall. The security

also prevents programs and Java applets from performing unauthorized tasks such as overwriting files or spreading a virus.

By supporting Java so broadly, IBM is keeping abreast of Microsoft Corp. and Netscape Communications Corp. in the Internet and Java development race, users said.

"This should help us to stick with the OS/2 Warp 4 platform," said Warren Huffty, a PC supervisor at the Louisiana Department of Transportation in Baton Rouge.

A NEED FOR BOTH

Huffty said it is "an absolute necessity" that his users be able to deploy Java applications that will run on both Windows 95 and OS/2 Warp desktops. "If IBM hadn't provided support for the latest version of Java on OS/2, we would have found it extremely difficult to continue using it," he said.

For some users, though, IBM's Java support in OS/2

JAVA 1.02 SUPPORT IN 05/2 WARP:

- Offers 60% performance boost
- Can run multiple Java applets on OS/2 desktops
- Can access Java via Netscape's Navigator 2.02
- Can deliver business content internally and over Web
- Has better security to protect TCP/IP addresses
- Has improved class interfaces
- Prohibits applets from performing unauthorized tasks

Warp is a moot point.

"It doesn't affect us because we're phasing out OS/2 on the desktop in favor of Windows 95 sometime this summer," said Tim Greene, a senior technical analyst at Variable Annuity Life Insurance in Houston.

Longtime OS/2 Warp user Mike Conlon, director of information resources at the University of Florida's College of Liberal Arts and Sciences in Gainesville, told a similar story. He said he is happy with OS/2 Warp from a technical standpoint and with IBM's efforts to keep pace in Java and World

Wide Web development.

Nonetheless, the college will phase out OS/2 Warp in favor of Windows 95 by June.

"Having two different operating system environments is a pain in the neck," Conlon said. "Our upgrade decisions are being driven by the desire to simplify our network management by standardizing on a single desktop operating system."

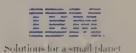
Java 1.02 support for the OS/2 Warp and Warp Server platforms is available now. Customers can download it from IBM's Web home page at www. software.ibm.com.

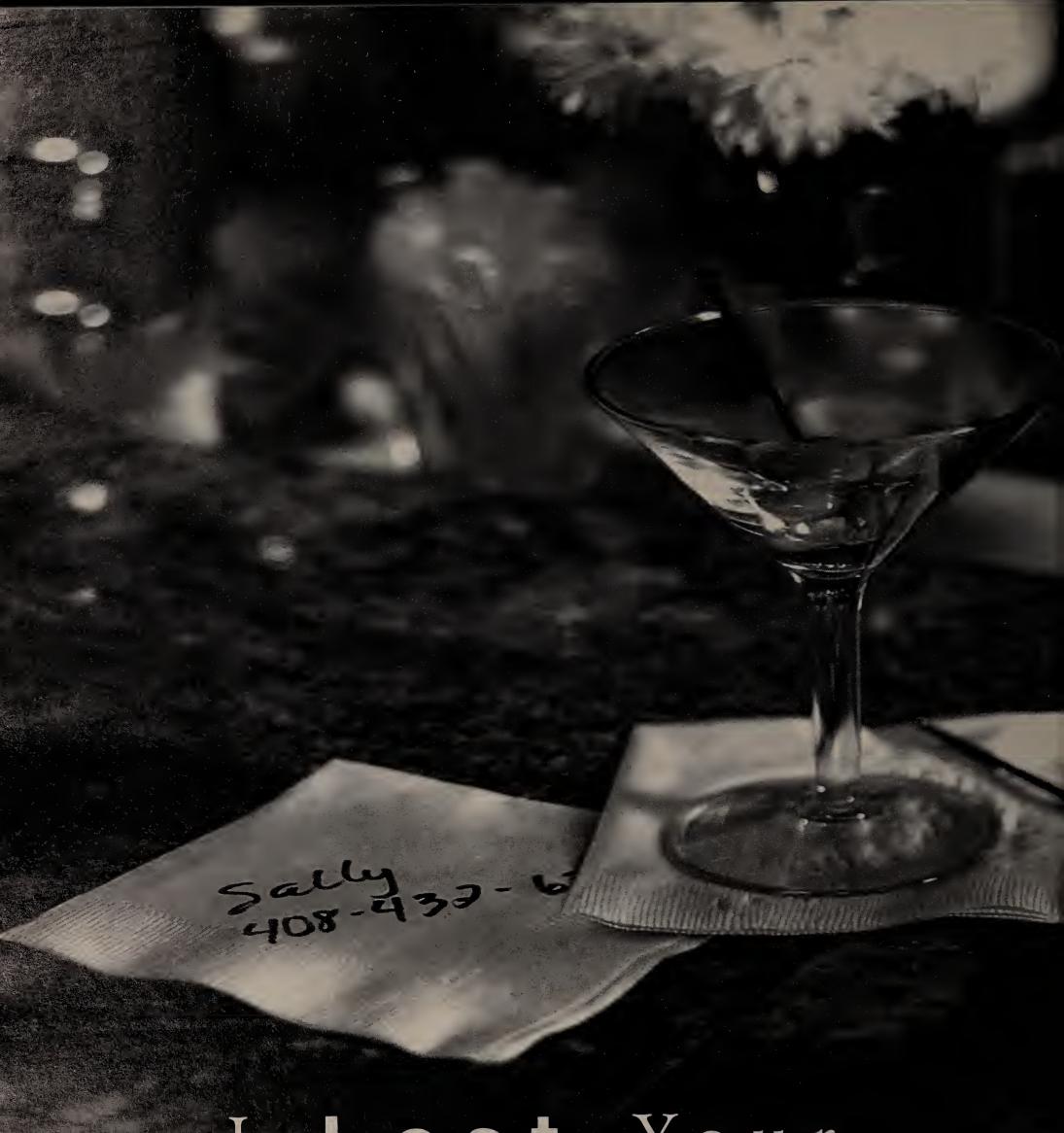


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The Internet

The World Wide Web + Intranets + Online Services

Web phone services

MCI Communications Corp. has launched a program to allow its customers to control their telephone service over the World Wide Web. The MCI One Web page allows users to set up and change their call forwarding, view and update current services, get credit cards, change billing addresses and get information and technical support via electronic mail.

INTERACTING

Interactive content of corporate Web sites



- Support interactive features
- Don't support interactive features

Base: 284 Fortune 500 public Web sites surveyed in 1996

Source: International Data Corp., Framingham, Mass.

Surf for mental help

Add therapy to the long list of uses for the Web. A new Web site called Wired Senses connects anyone suffering from depression, struggling with a relationship or facing other problems to mental health coun- selors. It is available any time, day or night at www. revisions.com/wiredsenses. html. Live sessions via a White Pine Software, Inc. CU-SeeMe link cost \$35, and E-mail counseling costs \$20. The service isn't accredited, however.

New news server

MetaInfo, Inc. in Seattle is shipping NewsChannel, a news and collaboration server for Windows NT based on the Internet's Network News Transfer Protocol. It is aimed at companies that wish to incorporate information from Internet newsgroups on intranets. It costs \$795 per server.

Briefs Ford pushes 'net data

▶ World Wide Web technology updates databases, not browsers

By Mitch Wagner

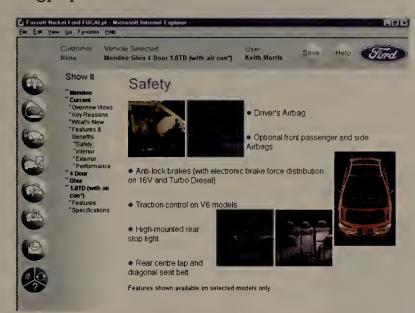
TO AN OBSERVER, Ford Motor Co.'s strategy might very well seem like a buying a new car and never driving it - just sitting inside to enjoy the air-conditioning.

The question is: Why would Ford license something as advanced as push technology for something as mundane as database updates?

Because it works, said Jerry Peterson, director of marketing and sales systems at Ford in

Ford plans by June to roll out a network to its more than 15,000 dealers worldwide that uses the Internet and push technology to support selling and servicing automobiles.

"This is not about making someone's screen saver flash." Peterson said. "The whole point is that, as you're going through a presentation with a customer, things are being updated in the background. The salesperson doesn't have to go off and ask for information — the right information comes to him before he needs it."



Ford's FocalPt system uses push technology to give salespeople rapid access to vehicle features and availability

Rather than waiting for a client to request information, as is normal on the World Wide Web, servers that use push technology send it to users automatically, often in the form of a screen saver. The most well-known example is the news network run by PointCast, Inc. in Cupertino, Calif., which spews headlines and ads over the Internet to millions of users worldwide.

Ford's network, called Focal-

Pt, was designed to improve customer retention by providing support for Ford customers for a car's lifetime [CW, Feb. 17]. The system will offer promotional, inventory and financing information to help salespeople close a deal. While talking to a customer, the salesperson will be able to locate the make, model and configuration of the customer's choice anywhere in the

Ford, page 73

SECURITY **System brings** surveillance into real time

By Charles Babcock

DIEGO-BASED Touch Technologies, Inc. has shipped a turnkey security system with a new twist --- constant real-time surveillance of the network.

Unlike firewalls, which take one look at data and then pass it along, Touch's Network Security Agent employs a common sniffer approach to detecting what passes over the network. Then, using rules that it has been configured to follow, it analyzes what particular packets are doing.

The system can track all file transfer protocol activities, including downloads from the Internet. It can identify an attempt to guess passwords or spoof a le-

gitimate file server's identification and address and automatically disconnect the session. It can also reconstruct a user's session as it happens, keystroke for keystroke, so network administrators can zero in

fight anyone who tried to take it away." - Brad Barrett,

TheNet

Security Agent]

months, and I'd

"I've had

[Network

for three

on suspicious activity, early users of the system

"I've had it for three months. and I'd fight anyone who tried to take it away. It opened my eyes to a lot that was happening," said beta tester Brad Barrett, vice president of operations at TheNet Digital Services, Inc., an Internet service provider in Miami.

Other security systems can capture similar information, but it is usually saved to a file where it is reconstructed for examination after the event. Network Security Agent, which is limited to TCP/IP and Digital Equipment Corp. Local Area Transport networks, is an attempt to show what is going when the alert is sounded.

Security, page 73

Just building an intranet isn't enough to lure users

By Justin Hibbard

INFORMATION SYSTEMS managers may think the media has already sold end users on the fun of surfing a corporate intranet. But like any new technology, an intranet can go unused unless someone leads users into the surf.

Heather Copeland-LaBruno, Internet development coordinator at Pacific Enterprises in Los Angeles, said some upper managers at her company are reluctant to share information and have resisted using an intranetbased discussion application.

"We've been trying to convince people that knowledge is power if you share it, and if you hold things close to your chest, it doesn't help you or the compa-



JC Penney's one-day intranet fair helped build interest

ny," Copeland-LaBruno said.

By contrast, users at the bottom and middle of the corporate hierarchy have been open to the new technology, she said.

"The people at the lower levels are hungry for information," she said. "And they're willing to give [information] up to get

something in return."

Like many intranet builders, Copeland-LaBruno has found that the biggest challenge of deploying an intranet is promoting its use. She and other intranet veterans said that IS managers must be prepared to double as teachers, team builders and impresarios if they expect end users to make an intra-

But the payoff can be big, according to International Data Corp. (IDC) in Framingham, Mass. The firm last year studied Netscape Communications Corp.'s corporate customers and found most of them garnered a return on investment of more than 1,000% from their intranets. Most of the return came in the form of increased user productivity. Driving the high returns, IDC found, was a set of best practices that included promoting the intranet to employees and offering pro-

Intranets, page 73

WEB SITE REVIEWS: AIRLINES

Some sites soar, while others will fuel reservations about E-commerce

By Frank Hayes

USERS CONNECT TO an airline's World Wide Web site for one primary reason: to buy a ticket. That's also the main criterion *Computerworld* used in reviewing airline Web sites for their usability.

The results were revealing: Some big airlines inflicted the



United's Web site lets you check flight schedules, but you can't buy a ticket, make a reservation or check a fare

miseries of their aging, mainframe-based reservation systems on Web customers. The best ones used the Web's userfriendly interface so nothing got in the way of doing business with the airline. Which is what Web sites should be all about. UNITED GRADE: C-

United Airlines' Web site was a huge disappointment. We couldn't buy a ticket, make a reservation, check a fare or even join the frequent-flier club. We could check flight schedules, but beyond that, this site was little more than an electronic brochure.

so was jumbled. The most valuable information schedules and availability — was all but buried. The graphics were pretty confusbut We had click on introductory page before getting to the real home page.

The site al-

The site also contained too much jargon, such as "CTO," which most customers

won't understand to mean "city ticket office."

AMERICAN GRADE: B

American Airlines' Web site was well-organized and useful — right up until we tried to

make a reservation.

The site looked and worked like a window into American's Sabre reservation system: We could check schedules, fares and flight status.

It used some jargon and offered much more aircraft data than was needed, but it did let us find out which gate a flight will arrive at.

But once we found a flight, we couldn't make reservations or purchase tickets unless we were members of American's frequent-flier club.

Worse still, we couldn't even join the club online — that required a phone call. American stopped us dead, halfway through the process.

DELTA GRADE: B+

It was a bit muddled, but on Delta Air Lines' Web site we could actually accomplish most of what we wanted to do: check flights and fares, buy tickets, even check frequent-flier mileage.

There were some restrictions: We had to buy the ticket when we made a reservation and couldn't buy a ticket without a frequent-flier club membership.

But we could join the club online, so that was merely an annoyance, not a show-stopper.

The site could use some careful editing. Although the "travel planner" section let us buy tickets, the "flight schedules" section said to call Delta for ticketing.

And the links for help and frequently asked questions didn't work during our testing.

USAIR GRADE: C

USAir had the Web site of the future — literally. We could check flight schedules, but almost all the features travelers would really like, including reservations and ticketing, were still in the planning stages.

USAir at least has an excuse:

The airline is about to change its name to U.S. Airways, complete with a new look.

The site will get a makeover within the next few months.

Other airlines with less-than-highflying sites included:

- •Continental (www.flycontinental.com), which required creditcard information to begin the reservation process.
- ■TWA (www.twa.com) oddly, asked for a password but let us in without one; it didn't offer reservations or ticketing.
- Northwest (www.nwa.com), which had no fare information or reservations.
- ■Valujet (www.valujet.com), which was just an online brochure.

Ironically, some of the bestdesigned airline Web sites were at smaller regional airlines.

SOUTHWEST

GRADE: B

Southwest Airlines' site was a joy to use — when it worked. The process of picking destinations, choosing fares and buying tickets was clean, colorful and straightforward, without side trips or dead ends to slow us down. The downside: Southwest's reservation system came back with "not available now" far too often during regular business hours.



Southwest's Web site is a joy to use, but some of its features don't work all the time

ALASKA GRADE: A-

Alaska Airlines' site wasn't quite so tightly designed, but it was still pleasant to use. Flight schedules, fares and online ticketing were available. We could even make a reservation without buying the ticket immediately.

Rough spots included trouble catching errors such as trying to fly on a date that had already past.

| | United Airlines | American Airlines | Delta Air Lines | USAir | Southwest Airlines | Alaska Airlines |
|--|-----------------|---------------------|-------------------|---------------|--------------------|-------------------|
| URL | www.ual.com | www.americanair.com | www.delta-air.com | www.usair.com | www.iflyswa.com | www.alaskaair.com |
| FLIGHT SCHEDULES | Yes | Yes | Yes | Yes | Yes | Yes |
| FARES | No | Yes | Yes | No | Yes | Yes |
| FLIGHT AVAILABILITY | Yes | Yes* | No | No | Yes | Yes |
| FLIGHT STATUS | No | Yes | Yes | No | No | No |
| RESERVATIONS | No | Yes* | Yes** | No | Yes** | Yes |
| PURCHASE TICKETS | No | Yes* | Yes* | No | Yes | Yes |
| JOIN FREQUENT- FLIER CLUB | No | No | Yes | No | No | No |
| CHECK FREQUENT- FLIER STATUS | No | Yes | Yes | No | No | No |
| CAR RENTAL LINKS | Yes | No | Yes | No | No | Yes |
| * Requires frequent-flier membership ** Requires ticketing | C- GRADE | B | B+ QRADE | C GRADE | B GRADE | QRADE |

Ford pushes info to dealers

CONTINUED FROM PAGE 7

world and let the customer know when to expect delivery.

FocalPt will also automate dealer service centers, so when a customer brings in a car for work, distributors have repair information specific to that car. Ford owners who break down anywhere in the U.S. will find that the nearest Ford dealership has all the information on their car stored locally.

Ford selected a push technology offering from Wayfarer Communications, Inc. in Mountain View, Calif., as middleware to send database updates from Ford headquarters to Microsoft Corp. SQL Server databases in dealerships worldwide. The data is distributed via the company's existing FordStar satellite net-

Ford picked Wayfarer for its performance and the wide variety of application programming interfaces it offers to

connect to legacy data stores, Peterson

The data that Wayfarer distributes will be available to FocalPt users with Microsoft's Internet Explorer browser. Some other push systems, such as PointCast, require proprietary clients on the desktop, which makes the experience unfamiliar to users accustomed to surfing the Web with standard browsers.

Dealers will welcome FocalPt, said John Anderson, computer director at car dealer Framingham Ford in Framingham, Mass. "It takes the power of the PC and provides new methodologies for interacting with the customer," Anderson

"This enables different people to see the data they need to see in a timely fashion, without a lot of network overhead," said Ted Julian, an analyst at International Data Corp. in Framingham.

Security

With 2,000 customers accessing The-Net's 20 servers, Barrett said he is "watching for suspicious activity on our servers, such as attempts at password file breaking."

Pricing for Network Security Agent ranges from \$15,000 to \$100,000.

A system break-in at the University of California, Santa Cruz in late 1995 prompted that school to install Network Security Agent. Network administrator Mark Boolootian said the intruder had installed software sniffers that could capture the passwords of legitimate users, but the surveillance product helped track down each sniffer and eliminate it.

"We actually managed to find several

people who were trying to get into accounts where they had no business," he said. The university couldn't find the money to purchase the product, so it doesn't currently use it, Boolootian said.

Network Security Agent is a pricey combination of software and a Digital 233-MHz Alpha workstation. It is sold ready to plug in and use.

The entry-level system costs \$15,000 and can provide surveillance over 150 users. A 500-MHz workstation for 5,000 users costs \$100,000.

Touch officials said the product requires the power of the Alpha systems because analyzing 200 million to 300 million packets per day "burns up" CPU capacity.

"I found the box to be quite useful to hunt down problems when you know they are occurring," Boolootian said.

"You can put a trap on the word 'password' and look at any traffic that mentions password," said Mir Roghani, senior LAN/WAN administrator at Raytheon Service and Support Co. in Annapolis Junction, Md.

Intranets need user interest

CONTINUED FROM PAGE 71

grams to encourage intranet use.

JC Penney Co.'s best promotional practice was a one-day intranet fair that showcased JWeb, the company's intranet, and taught employees how to use and create intranet applications, according to Mellanie Hills, former leader of the Dallas-based retailer's Internet/intra-

"It really did cause the spread of the in-

tranet," said Hills, now president of Knowledgies, a consultancy in Plano,

The fair boosted traffic and content on IWeb, Hills said. But those boosts alone won't make an intranet pay off, she added. Companies have to change some of their business practices to promote collaboration among employees, she said.

"The first step is to find folks who are

willing to work together and help them start working together before you start throwing the tools at them," she said. "Reward systems [at companies] teach competition, not teamwork. But intranets are starting to break down some of those old paradigms."

A more aggressive way to encourage intranet use is to give employees no alternatives. For example, by the end of this year, much of Pacific Enterprises' data will be available only through the intranet, Copeland-LaBruno said.

A similar intranet-only system is nearing completion at B. C. Hydro in Vancou-

ver, British Columbia, which is migrating from IBM's mainframe-based Professional Office System groupware to an intranet and Microsoft Corp.'s Exchange messaging system. Already, much of the company's data is accessible only through a browser, according to Steve Whan, corporate webmaster at the company. But B. C. Hydro has taken steps to ensure that users know how to be productive on the system.

'Every user gets a half-day course," Whan said. "We've seen our usage probably double in the last month with the [newly trained] users coming on board."

QSOUND LABS, INC. has announced UltraQ, a peripheral for converting a stereo or mono output signal from a PC's sound card and processing it into threedimensional sound.

According to the Calgary, Alberta, company, UltraQ connects between a sound card and speakers to deliver 3-D sound. UltraQ includes a volume control and a signal light that lets users know whether the input signal is stereo or

UltraQ costs \$99.95. **QSound Labs** (403) 291-2492 www.qsound.com

SILKNET SOFTWARE, INC. has announced ServiceDesk, a customer interaction software system for the World Wide Web.

According to the Manchester, N.H., company, the product allows customers to post problems on a Web site and have them routed or request online assistance. It runs on Windows NT servers.

Pricing starts at \$50,000.

Silknet Software (603) 625-0070 www.silknet.com PILOT SOFTWARE, INC. has announced Pilot Internet Publisher, the Internet and intranet component of the Pilot Decision

According to the Cambridge, Mass., company, the support software allows for online analytical processing capabilities through standard Internet architectures. The software can use Java and ActiveX technologies.

Pilot Internet Publisher costs \$10,000 per server.

Pilot Software (617) 374-9400 www.pilotsw.com

INLET, INC. has announced CurrentIssue, a World Wide Web site design and management software package.

According to the Cedar Rapids, Iowa, company, the product includes a design client, server processing, site management and prebuilt components to let developers create and manage sites without buying multiple software applications.

It costs \$995. Inlet (319) 369-0096 www.inlet.com

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Radnet gets funding

Radnet, Inc. has received \$40 million in venture funding. The Cambridge, Mass., company sells collaboration software for the World Wide Web. Radnet, which includes several former Lotus Development Corp. executives, recently launched WebShare 2.0, an upgrade of its flagship software that supports replication and features improved security.

Comdisco buys ERI

Comdisco, Inc. has acquired Exchange Resources, Inc. (ERI), a Minnetonka, Minn.based disaster recovery services firm that specializes in trading-floor recovery for customers in the financial services industry. Comdisco in Rosemont, Ill., purchased ERI for \$2 million in cash. ERI filed for Chapter 11 bankruptcy protection in September.

New McKesson ClO

Carmine I. Villani was elected corporate vice president and chief information officer at McKesson Corp., a San Francisco-based distributor of pharmaceutical, health care and water products. Villani joined McKesson in 1992 after 27 years at IBM.

Bank outsources HR

Firstar Corp., a Milwaukeebased bank with \$19 billion in assets, has signed an outsourcing agreement with Fisery, Inc. in Brookfield, Wis., to run its human resources, payroll and benefits-processing services. The companies didn't disclose terms of the agreement.

Outsourcing megacontracts (valued at \$1B or more)

| 1993 | \$8.8B |
|------|---------|
| 1994 | \$10.9B |
| 1995 | \$19.7B |
| 1996 | \$32B |
| 1997 | \$40B* |

*Projected

Source: Merrill Lynch & Co., San Francisco



Techno-phobic MDs refuse to say 'Ah!'

► ER doctors wary of computerized records

More accurate

record-keeping

could boost

doctors'

incomes by

10% to 20%.

By Thomas Hoffman

ONE HOSPITAL FOUND the toughest part of introducing a new record-keeping system that could raise physician salaries was getting the emergencyroom doctors to use it.

HealthSouth

Medical Center's emergency department, which last June began using a pen-based computpatient erized record system from Datamedic Corp. in

Hauppauge, N.Y., has been able to significantly improve its patient-record reporting.

That means higher salaries HealthSouth emergency room doctors, whose salaries de-

pend on the number of patients they see and the level of care their patients receive, said Dr. Bob Slay, chief of the emergency department at HealthSouth in Richmond, Va. The more accurately they can document what they have done, the more they

> get paid. Yet Slay has had trouble getting his staff to use the system. HealthSouth's emergencyfive physicians room handle 20,000

combined patient visits each year. Like most emergency-room doctors with overwhelming caseloads, many of the HealthSouth doctors say it is faster and easier for them to

Doctors, page 76

SKILLS TRAINING

Cross-training pleases Georgia-Pacific IS staff

By Julia King ATLANTA

INFORMATION SYSTEMS professionals at paper manufacturer Georgia-Pacific Corp. aren't fluent in just hardware and soft-

Through an ongoing \$5.8 million training program, they also are conversant in consulting, conflict resolution and the business aspects of the departments they serve. The training program is at the heart of a major,

three-year-long IS overhaul at the company.

Georgia-Pacific this month also opened an on-site IS performance support center continued computer-based

skills training. The company also has launched a project certification management course, which teaches standard methods for running and measuring large IS projects on a day-to-day basis.

It is all part of a "major people rebuild," said Rick Partridge, group manager of IS human resources at Georgia-Pacific. "Three years ago, we looked around and saw we had very robust technology skills but that there were major gaps in business and softer skills.'

To plug those gaps, Georgia-Pacific assessed the skills of each of its 800 IS staffers against a newly developed job competency model. The company then developed what has become a 70-course curriculum that covers technical and business skills, including effective communications, presentation skills and time management.

BUSINESS-SPECIFIC

IS staff members also are trained in their customers' business areas. For example, a new systems analyst who works in

> accounting will take classes in financial administration, Partridge said.

"We now expect everybody in

"Business skills are the key to everything." – Dave Deckebach, Georgia-Pacific Corp.

IS to understand their customers' business. This has made a tremendous improvement in moving from an 'us vs. them' atmosphere to a partnership with customers," Partridge said.

Partridge said Georgia-Pacific also uses its training program as a sales point to recruit qualified IS professionals. "The flip side,

Georgia-Pacific, page 76

Sensormatic upgrades to Baan client/server package

By Randy Weston

SENSORMATIC ELECTRONICS Corp. may have provided 21st century security technology at last summer's Centennial Olympic Games in Atlanta, but its own information systems were older than some of the athletes and lagged behind the company's needs.

The company's system was designed for a \$100 million



Firm's growth led to mismatched systems that "had a little bit of everything"

company with one manufacturing plant, said Dennis Torrell, vice president of MIS at Sensor- electronic security tags and matic.

GROWING PAINS

Since then, the Boca Raton, Fla.-based company has grown into a \$1 billion multinational corporation with offices as far away as Mansourieh Al Matn Lebanon, and Port Louis, Mauritius.

Now Sensormatic, a maker of security devices including retail closed-circuit televisions, is standardizing its business on a single packaged client/server application — The Baan Co.'s Baan IV software.

"Because of the high-growth industry we are in, we ended up with a lot of mismatched systems systems that didn't talk to Sensormatic, page 76

Critics say Fannie Mae Web site will hurt mortgage lenders

By Thomas Hoffman

A NEW WEB SITE posted by Fannie Mae is supposed to make it less intimidating for first-time home buyers to shop for a mortgage. The site provides hot links to lenders who offer online mortgage applications.

HomePath.com may be good news for low- to middle-income buyers and first-time buyers. But critics believe the system may have an unhealthy ripple effect on banks and other

COMPARISON SHOPPING

The site (www.homepath.com) provides hyperlinks to the World Wide Web sites of 23 Federal National Mortgage Association (Fannie Mae) lenders, in-

cluding Bank of America Countrywide Home Loans, Inc. Consumers can use these hot links to comparison shop for mortgage rates

and, in some instances, lock in to a mortgage rate online with a

By using the site and its hot links, consumers reportedly can expect to significantly reduce the amount of time required for preapproval.

Critics fear that the service will commoditize mortgage services among banks and weaken customers' loyalty to their banks.

"The downside for banks is that it lessens their control over customers," said George Kivel, a technology analyst at The Tower Group, a Newton, Mass.-based financial services and technology consultancy.

Another concern is that allowing home buyers to comparison shop for mortgages online could trigger an interest-rate war among competing banks, said Art Gillis, president of Computer Based Solutions, Inc., a Dallas-based banking consultancy.

"The worst thing for a banker to do is get into a battle over interest rates," Gillis said. What

"The worst thing for a banker to do is get into a battle over interest rates."

- Art Gillis, Computer Based Solutions, Inc.

> banks prefer to do is to sell their services, "not haggle over a quarter point here or there," he

> HomePath.com could go a long way toward creating brand recognition for lesser-known Fannie Mae lenders such as

Monument Mortgage, Inc. in Walnut Creek, Calif., (www. monument.com) that are hyperlinked to the site.

HomePath.com "should significantly help us branch out into other geographic areas," said Lee Decker, senior vice president of secondary marketing at Monument.

QUICK RESPONSE

Today, a consumer can dial in to Monument's Web site, apply for a mortgage online and get preapproval within six hours, Decker said. Partly because of the hot links between Fannie Mae and Monument, the time required for preapproval should be slashed to one hour, he said. Monument has invested roughly \$100,000 to port Fannie Mae's interface to its site.

ONLINE CALCULATORS

HomePath.com, which went live last month, includes online calculators that Web surfers can use to figure out what size mortgage they can afford to buy. HomePath.com, which is best viewed using Netscape Communications Corp. Navigator 3.0 or Microsoft Corp.'s Explorer, next quarter will add a state directory of free home buyer education services for consumers, said Lisa Haas, Fannie Mae's webmaster in Washington.

Doctors wary about system

CONTINUED FROM PAGE 75

scribble nearly illegible handwritten notes on patient charts than to use a pen-activated tablet.

"I used the system for a while, but I just couldn't be bothered lugging a computer around anymore," said Jill

Browne, a Healthemergency South medicine specialist who began using Datamedic's EMstation system last fall, "We're so pressed for time [in the emergency room) that it's faster to make notes on patients' charts," she said.

Browne isn't alone. Persuading doctors to use computers, industry practitioners said, is about as popular as getting patients excited about receiving a barium enema.

"Doctors are incredibly stubborn when it comes to using computer technology," said Phil Jackson, an independent consultant who works with Partners HealthCare System, Inc., a Boston-based alliance of Brigham & Women's Hospital, Massachusetts General Hospital and other Boston-area medical facilities.

Voice-recognition software vendors such as Kurzweil Applied Intelligence, Inc. in Wal-

tham, Mass., have developed medical language-based systems that free doctors' hands from keyboards or notebooks during patient examinations, said Art Schoeller, an analyst at Gartner Group, Inc. in Stamford, Conn. But most doctors

"I used the system for a while, but I just couldn't be bothered lugging a computer around."

- Jill Browne, HealthSouth emergency medicine specialist

> "talk really fast," and few doctors have the patience to use systems that require slow, steady enunciation, Schoeller said.

Slav said the financial incentives are helping him to slowly draw his staff into using the system.

For certain cases, Health-South physicians receive 40% less in patient reimbursements with handwritten notes because of less-complete information than they would if they used EMstation, Slay said.

"That can make a big difference to a doctor's bottom-line pay, so those incentives are helping us wean them into using the system," Slay said.

Sensormatic upgrades to Baan client/server package

CONTINUED FROM PAGE 75

each other," Torrell said.

Sensormatic "had a little bit of everything," with legacy hardware from Hewlett-Packard Co. and Digital Equipment Corp, he

GOOD REFERENCES

Because several European offices were already using Baan's application package, the software selection team put it at the top of its list. Baan was chosen last summer, installation began in September and the first site went live last month.

About 20 people from Torrell's staff work full time on the project. Hundreds more, from end users to local IS staff, are pulled in for each site's installation to help configure individual modules. The conversion has included inigrating from older

HP 3000 minicomputers to HP 9000 servers that run the Unix operating system. Sensormatic also installed its first database management system from Oracle Corp.

Last month, Sensormatic went live with Baan business process guidelines for its 73 sites around the world.

In addition, seven offices are already using Baan modules, Torrell said. About 500 Sensormatic end users are using Baan's products. Almost 1,500 will be on the system when the project is completed.

Torrell wouldn't release the total cost of the implementation, but he said so far it is on time and within budget.

Bruce Richardson, an analyst at Advanced Manufacturing Research, Inc. in Boston, said a

typical global installation of this size would cost between \$8 million and \$10 million.

USER-FRIENDLY PACKAGE

Suzie Chowaniec, manager of Sensormatic's international order-entry group, said the Windows-based Baan client is very user friendly and flexible compared with the company's old menu-driven terminals. But the packaged Baan applications are hard to customize, she said.

"Customization creates a ripple effect," Chowaniec said. "If you try to modify some fields, you hit so many other areas because [all] the functions are intertwined. You want a package, but you suffer for it."

Richardson agreed. "It's the bane of a completely integrated system," he said.

Georgia-Pacific cross-trains

Between 1993 and

1996, Georgia-Pacific

also installed a

corporate wide-area

network and

outsourced its data

CONTINUED FROM PAGE 75

though, is that we give them skills that make them very marketable," he said. Georgia-Pacific's IS turnover rate was 18% last year, he said.

Still, the enhanced business and soft-skills training works to better align IS with Georgia-

busi-Pacific's ness, Partridge said. The proof is mainly in the higher scores the IS staff has received on customer satisfaction surveys, he

"Business

skills are the key to everything," said Dave Deckebach, a former IS director who worked in a variety of operations assignments before he became assistant manager at a Georgia-Pacific chemical plant in Peachtree City, Ga.

As an IS director, "most of my interest was in trying to get

close to the business and get inside the heads of leaders of the business. That all helped me to sell IS projects that made the most sense," Deckebach said.

Other companies gradually are catching on to the value of systematically cross-training IS

> staffers in technical and business skills, said Ellen Julian, a research manager of training and education programs at International Data Corp.,

"We're seeing a more unified delivery of IS and soft skills. That's filtering down to not just the senior IS staff, but to the people who report to them. They need to present information and [need to] be able to justify spending time on what they're doing," Julian said.

center operation to Integrated Systems based Solutions Corp. in Framingham, Mass.

Managing

What's in a name?

Yesterday's data processing manager and today's CIO need a new title, Jim Champy argues. Page 80



Glenn Hansen turned down a job offer that would have increased his pay 25%. His reason? His employer offers him training opportunities that boost his credentials.

reatiem

Are you losing good people? It probably isn't over money. A Computerworld survey finds that faith in the boss and the company often means more than a 20% raise.

CONTINUED FROM PAGE 1

agers who need to keep their best employees but can't leave or stay at their jobs. Seventy-five percent say monmatch the lofty pay raises and bonus packages being ey is important or very important, but other factors offered by their competitors. Assuming IS professionals are being paid a reasonable wage, what really keeps them on the job is a good work environment and the long-term ability to learn new skills.

To find out what it really takes to keep skilled people, Computerworld interviewed 200 IS professionals who had seriously considered job offers last year and in the second half of 1995. All but 36 refused the offers. We asked them why and found the following:

► Pay is *not* the most important reason IS employees

such as training and the ability to use new technologies were rated just as high or higher.

- ►In making job decisions, 81% cited the teclinical direction of the information technology organization, and 79% stressed the ability to use and learn new tech-
- ► Seventy-nine percent cited the quality of their boss, and 77% mentioned the quality of their peers in IS.
- ► Bonus plans were rated important or very important Treat 'em right, page 78

Treat 'em

CONTINUED FROM PAGE 77

by only 42% of all respondents; special financial incentives received high marks from only 32%.

Don't misread the findings: Money is important, and IS professionals have a keen sense of what they're worth.

"I could leave right now for a 20%-plus [pay] bump," Hansen says. But he says he likes the training he's getting and the fact that Seta goes to unusual lengths to "mediate the rough spots" between consultants such as him and clients. "I would rather have a slightly lower pay level and be treated fairly and intelligently than make big bucks and be abused," he says.

Tell off your old boss

Do you want to tell off your former boss? Send us a "Dear John" letter detailing what you would say.

We'll print some, but we'll keep your name and your ex-boss' name secret. Send letters to robert_scheier@cw.com.

Be sure to include your name, address and telephone number. We won't print that information.

The quality of their bosses was a topranking issue for almost eight out of 10 of those surveyed. That means being fair, flexible and knowledgeable.

If a manager doesn't understand the technical requirements of a project, "he can't be of assistance to his staff," says a LAN administrator at a financial services company in the Southwest, who asked not to be identified. "I don't expect them to be in there coding along with the programmers but to be able to help define the parameters and understand the scope of the project." All too often, the LAN administrator says, IS managers fail the test: "Too many of them have reached their level of incompetence."

Ideal IS managers should introduce their staffs to unfamiliar technologies and "actually encourage them to fail, because that means they're trying," the LAN administrator says. The ideal boss sets aggressive but realistic goals and explains them clearly. "Success and failure in a project need to be well-defined and communicated, so someone can tell

today how they're meeting the criteria. If it's ambiguous, if it's poorly defined, if it's not communicated, then people are subject to start floundering."

Being treated well can be as "silly and simple" as a gift certificate for dinner for whoever can write the most defect-free code, says Keith McMaugh, a systems manager at Day-Lor Creations, Inc., a maker of fashion belts in Providence, R.I. "Sometimes, you just feel like you're being taken for granted, that you're just another body to be thrown into the machine and torn up and spit up," he says.

He turned down a job that offered a 15% pay increase in part because of the recognition and autonomy he gets in Day-Lor's three-person IS department. "If I were one of hundreds [I] might find it hard to gain the kind of recognition that I was used to." he says.

The employer's financial stability was ranked important or very important by three-quarters of the respondents. That isn't surprising, considering that 84% of them are the primary breadwinners in their families. Chris Walker, previously an independent consultant, accepted an offer to become LAN manager at Vanderwile Engineers, Inc., an industrial engineering firm in Maitland, Fla.

"It seemed a little more stable" than working on his own, Walker says. "Companies have money, contacts; they have buying power." Plus, he says, he was looking to buy a house and "a bank looks at having a position with a company as a lot better than having a private consulting business."

Tight labor market or not, IS employees also tend to stick with bosses who have stuck by them in times of family difficulties. James Houk, a senior systems analyst at Cytec Industries, Inc. in Milton, Fla., says he didn't really agonize before rejecting a job offer. One reason, he says, is the flexibility his boss showed during a recent series of family crises.

"When my mother and grandmother passed away, he [was] very supportive and allowed me to take care of what business I needed to take care of," Houk remembers. It's important, he says, that he can tell his manager, "'I've got a problem with my child; I need to take care [of it] without having a big repercussion."

Survey respondents said keeping themselves marketable by working with current technology was either a powerful inducement to stay in a job or a powerful temptation to switch. Even though Walker is glad he took his new job, "in some ways I feel like I've fallen behind" in learning new technologies. "A lot of seminars and trade shows come by, and often I'm not given the opportunity and the time to go see them. I think it's important... to be given that opportunity."

At Fallon Health Care System in West Boylston, Mass., Dwight Muller, director of MIS, is trying to address the training and recognition issues after going through a recent spate of defections.

Muller established a "Best of IS" program to recognize one employee each month with a small cash award and a small ceremony. At "lunch and learn" sessions every few weeks, IS staff members can learn about new technologies such as data warehousing. "They're wellattended; it tends to keep people's enthusiasm up a little bit," he says.

Muller also believes in being specific about the technology opportunities he will offer people. A manager should say, "'Here is your assignment, here is what you can expect to do in the middle of next year, and by the way, you're going to sit through this training session two months beforehand,'" he says. What's important is the "specific linking of the specific opportunity to the individual," Muller adds, instead of the broad-brush "'Here's where we're going over the next three years.'"

Of course, many IS managers worry — with good reason — about employees leaving for higher-paying jobs as soon as they're trained and marketable in the latest hot technology.

But Hansen is unsympathetic to employers. "That's the risk, and you can't avoid it," he says. "There's no such thing as loyalty anymore." But "training, treating people right, respecting opinions... these are important factors in staying. We all want to feel good about ourselves and that we're relevant."

Scheier is Computerworld's senior editor, management.

Money is important,

but not as much as a good

boss and technology

"On a scale of 1 to 5, where 1 is

unimportant and 5 is very important,

please rate the following issues:"

Technology direction

of IS department _

Faith in financial stability

Faith in future business

of the company _ _ _ _ _ _

Ability to use

More challenging

Quality of boss _ _ _ _ _ _ 4.24

new technologies _ _ _ _ _ _ 4.08

Job security _ _ _ _ _ _ _ 4.05

assignments _ _ _ _ _ _ _ 3.99

Location _ _ _ _ _ _ 3.98

BASE SALARY_ _ _ _ _ _ _ . 3.95

direction of the company $_$ $_$ $_$ $_$ 3.93

Training opportunities _ _ _ _ _ 3.81

RETIREMENT PLAN _ _ _ _ _ 3.64

BONUS PLANS _ _ _ _ _ 3.31

IT ISN'T THE MONEY... IT'S THE TECHNOLOGY LEADERSHIP

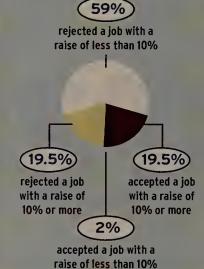
Four out of five IS staffers turned down an offer to work elsewhere . . .

Base: 200 IS employees



... even when they were offered more money.

Base: 138 IS professionals who were offered higher-paying jobs with other companies



Base salary is a bigger issue with younger employees

Importance of base salary in deciding

to accept or reject most recent job offer:

Under 30 years old _ _ _ _ _ _ _ 4.14
 30-39 years old _ _ _ _ _ _ 3.98
 40-49 years old _ _ _ _ _ _ 3.96
 50 years and older _ _ _ _ _ 3.58

Base: 200 IS employees

ABOUT THE SURVEY

Computerworld surveyed 200 IS staff members in December, asking them whether they had received an outside job offer last year or in the second half of 1995. Of the 200 surveyed:



said they made the right choice



were men



were the primary wage earners in their families



had children

ESOURCES: WEB SITES

By Leslie Goff

Did you make any New Year's resolutions to become better informed via the Web? If you haven't lived up to them yet, here are some sites worth a look.

RESOLUTION: Get news and information I need regularly in a more timely, efficient manner.

CEO Express

www.ceoexpress.com/

THIS IS A TIGHTLY FOCUSED and implemented listing of business resources that smartly consolidates choice links relevant to busy information systems executives.

The links are clearly categorized and listed on the home page, so the site is efficient to use.

You can immediately access the most relevant media, including daily newspapers, business magazines, news feeds and international newspapers.

The site also links to key business resources such as stock quotes, corporate research, airline schedules and package-tracking services.

The office tool links are diverse and useful, including the Anonymizer site, where you can download software that protects your identity as you surf the World Wide Web. And, recognizing that even harried executives have a life outside the office (or at least fantasize about one), CEO Express offers links to travel and leisure sites.

Corporate Intelligence Sourcebook

home.dti.net/shadow/sourcebook/

PLAY CORPORATE SECRET AGENT with this directory, marked by its esoteric selection of links to the darker side of business. Corporate Intelligence Sourcebook delivers the unexpected. Around one corner you'll find Lexis/Nexis, but around the next you'll wander into links to journals such as "Terrorist Profile Weekly'' (check it out if you're traveling abroad). You never know when that might come in handy in the corporate arena. The Databases page is the most useful, serving up links to criminal registries (find out if any of your employees harbor secret pasts), an electronic-mail locator, worldwide Yellow Pages and other sources. Unfortunately, the Sourcebook's seven categories are sometimes unfocused. The Financial section, for example, is a hodgepodge of links to stock markets, war-gaming resources and corporate intelligence sites. Yet the site is too uneven and the text far too small. Still, it's worth bookmarking for those times when you just have to know who's hiding what.

RESOLUTION: Get up to speed on a new technology that could help my company reach its business goals.

The Wireless LAN Alliance Home Page www.wlana.org/

GET THE EXECUTIVE VIEW of an emerging technology that promises to make corporate applications and real-time data more widely available in remote environments and even to make the network itself movable.

The Wireless LAN Alliance is a vendor consortium, but the material is presented evenhandedly and is sharply focused on the relevance of wireless LANs to day-to-day business systems. From the home page, click on the Intro button for information on applications and benefits, configuration and operations, technology options and a briefing on what customers should consider, as well as a good glossary of terms.

The User Success Stories button yields a page of relevant case studies. The Resource Directory page is a concise selection of related research, commercial and association sites.

The Neural Network FAQ

ftp://ftp.sas.com/pub/neural/FAQ.html/

THIS FREQUENTLY ASKED QUESTIONS (FAQ) page smartly addresses this complicated topic — parallel distributed networks that can store experiential knowledge for analysis — from the ground up. It certainly uses technical terms that will be unfamiliar to many, but the writing is straightforward and clear. And just about the time you're thinking, "How can I make this relevant to my company?" the FAQ offers links to research projects and real-world applications of neural nets across manufacturing, health care, financial services, transportation and other industries.

The FAQ, an organized file transfer protocol archive of postings to the comp.ai.neural-nets newsgroup, has seven parts. It deals with the nitty-gritty of how neural networks operate, what they can and can't do, the myriad communities using and researching them and other sources of information — and misinformation.

RESOLUTION: Learn something new every day.

LeadStory

www.bnet.att.com/leadstories/

RATHER THAT TRYING TO GIVE you all the top headlines, LeadStory picks one topic a day and intelligently digests related articles from newspapers, magazines and journals all over the Web.

Each linked story examines a different aspect of the issue, and collectively they create one giant up-to-theminute white paper.

The topics aren't IS-specific, but they deal with IS-

and business-related material frequently enough to merit regular checking.

In mid-December, for example, the site featured "Repetitive stress injuries: A legal pain for the computer industry?"

LeadStory anchored its links with a CNN story on the recent jury award in an injury suit against Digital Equipment Corp. It also offered links to related legal

Goff is a freelance writer in New York.

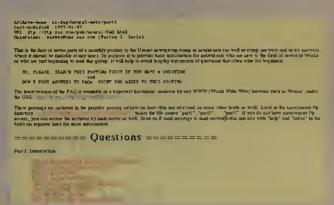


CEO Express

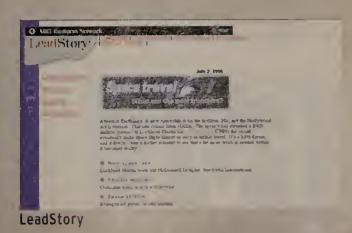




The Wireless LAN Alliance Home Page



The Neural Network FAQ



JIM CHAMPY

WILL THE **REAL CIO PLEASE** STAND UP?



fter more than a decade of tinkering with the titles, responsibilities and qualifications of the CIO, it's time to pull out the proverbial clean sheet of paper and reinvent the job.

The reason: CIOs now have more conflicting roles than Sybil had personalities. And that's not to mention the schizophrenic business-vs.-technology corporate culture gulch they inhabit.

Some history as to how we got to this fragmented state: Sometime during the 1980s, we made a momentous move (or so we thought) of changing the title of "data processing manager" to "chief information officer" — the CIO.

The job wasn't just about managing technology, we argued. We also had to manage information as a "corporate asset." There was celebration throughout data processing-land. Corporate status had been achieved. I guess that's what "officer" means.

A while later, we recognized that technology itself would become real impor-

So, many companies — particularly technology companies - created an additional role and title of "chief technology officer," or CTO. It would be this person's job to watch for emerging technologies and advise on technology strategy.

In some companies, the development of the hierarchy went even further. '

'Knowledge'' was different from 'information," it was argued - and "knowledge" is too important an asset to be left alone. So some companies created the role and title of "chief knowledge officer" — the CKO.

Now, having created these multiple jobs, somebody had to fill them. But management didn't necessarily trust the incumbent data processing manager in any of these roles. And it became in vogue to get someone from the business side to fill the CIO job. After all, understanding the business was more important than understanding technology or so we thought.

There was only one problem. How could a person who was proudly ignorant of "dweebie" technology lead a company into the Information Age? With so much going on in technology, I see evidence that putting "line managers" into the CIO job may have actually clouded our future operating condition.

Furthermore, splintering this already complex job into CIOs, CTOs and CKOs only added to the confusion. The truth is, we have yet to find the right definition (and title) for the job of leading our companies into the Information Age. And, in general, we have yet to succeed in finding the right kind of manager to do it. Maybe that's because it's either everyone's job or it's the CEO's job or because there is no single person capable of doing it.

For example, some argue that, currently, CIOs have three almost mutually exclusive roles: a fiduciary role in managing IT assets, an implementer/integrator role in supporting business-change efforts and an innovator's role in which technology could create a breakthrough advantage, not only in products but chan-

The last area — leadership at the intersection of business and technology - is where the rubber meets the road. And that leadership is more important today. Why? Because information technology not only enables how we do our work, it's increasingly defining what the business is. And there is a confusing choice of technology strategies for any company. Where and how to place your bets is becoming increasingly critical.

So, what does the job take?

My best description — and unfortunately, it comes from the past — is some sort of "scientist statesman." It's a person who has a real understanding of where technology will go, a person who can sense what that may mean for the business strategically, a person with the guts and bearing to convince others of what the future will look like and a person capable of managing the transition.

You say there aren't enough of these people to go around. I say we haven't thought hard enough or looked far enough within our organizations to find the right person.

We have treated the CIO job as just another one of those slots that had to be filled. Or we have sought someone to fix a condition that has been troubling for some time; for example, all systems development is behind schedule or over budget.

What we should do is define the job as it must be done today. Nothing less will do. And we'll need a new title. How about "chief reinvention officer" — the CRO?

Champy is chairman of consulting at Perot Systems Corp. in Cambridge, Mass. His E-mail address is JimChampy@ps.net. His newspaper columns are syndicated by Tribune Media Services.

Sears CIO rethinks pay for performance

ears Roebuck and Co.'s Chief Information Officer Joe Smialowski is juggling pay plans and

weighing major technology decisions as he works to "reinvent" the information systems organization at the \$35 billion

To help improve morale, lower-level IS staff will see increases in their base pay beginning next month, but they will have less opportunity to earn bonuses based on Sears' financial performance or their own work. Smialowski made the

change after a survey found that younger staffers felt their pay was "too highly leveraged," meaning they could lose part of it if either they or Sears had a bad year, performance-wise.

But for those at the project manager level and above, "we will continue to put more of their compensation at risk," Smialowski says.

That's partly to prod IS managers to meet goals such as better and faster service to busi-

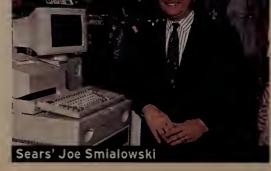
ness users and continuing to cut costs.

In the past three years, Smialowski has already made impressive strides, cutting IS spending from 1.6% to 1.3% of revenue and reducing staff from 1,400 to 1,150 full-time equivalents.

But last fall, he told the IS organization it needed to strengthen relationships with business managers and that it needed to continue to cut costs by making "hard choices" to eliminate unnecessary projects. About 200 IS staff members

are working on eight commit-

tees to improve areas such as organizational structure, work processes and rewards and recognition within IS. At the same time, Smialowski and his staff are working on a new strategic IS plan. — Robert L. **Scheier**



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 - (e) Mac **O**S (f) Windows NT (a) Solaris
 - (b) Netware (c) OS/2 (g) Windows
 - (d) Unix (h) NeXTstep App. Development Products ☐ Yes ☐ No
 - Networking Products ☐ Yes ☐ No Intranet Products
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- 5. Do you use the Internet?
 - ☐ Yes ☐ No

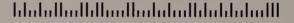


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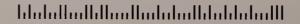
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Buyer's Guide

PRODUCT REVIEW: Three out of four videoconferencing systems we tested stand on solid ground. USER VIEW: Amoco executive talks about videoconferencing pilot and what it would take to be more successful.



CorelVideo Remote
Can deliver excellent
video but has maturity
and compatibility
problems



Intel ProShare
Conferencing Video
System 200
Performed the best
for overall LAN
and ISDN use,
but installation
is tricky



PictureTel Live200
Offers the sharpest picture and audio, but a few pieces are missing



RSI Business
Traveler
An expensive, limited
system with the
appeal of a selfcontained unit

VIDEOCONFERENCING



By Chris De Voney



Desktop videoconferencing technology has always had excuses for its almost-acceptable quality and barely effective collaborative tools. But based on our tests for this review, the excuses are wearing thin.

We evaluated desktop systems from Corel Corp., Intel Corp. and PictureTel Corp. and a portable product from RSI Systems, Inc. Two vendors, Compression Labs, Inc. and VTEL Corp. (which are in the process of merging) and Vivo Software, Inc., declined invitations to participate.

We tested the systems on a Gateway 2000, Inc. P120 with a 120-MHz Pentium, a Gateway 2000 P5-200 with a 200-MHz Pentium processor, a Gateway 2000 P5-200/MMX running a 200-MHz Pentium MMX processor and a Micron Electronics, Inc. Millennium running a 200-MHz Pentium MMX processor. Each machine had Peripheral Component Interconnect (PCI) video, 100M bit/sec. Intel EtherExpress Pro/100 cards and a 17-in. monitor. We tested each card over Integrated Services Digital Network lines with test calls to and from each vendor, and on our LAN. We judged video quality, audio quality and the speed and ease of sharing Microsoft Corp. Office documents.

BUYER'S GUIDE

VIDEOCONFERENCING

CONTINUED FROM PAGE 81

PRODUCT REVIEW

Core!Video Remote

\$1,995 Corel (800) 772-6735 www.corel.com

A MINOR NIT with desktop videoconferencing systems is that users lose eye contact with the camera when they look at the video display. But CorelVideo Remote offers a feature other makers should copy: A color camera whose lens sits just above the edge of the screen. This makes a Remote user always appear attentive even when studying the display.

Remote uses 128K bit/sec. ISDN but can handle high-quality video if it is used with a 384K

bit/sec. ISDN connection

and an option-

al \$495 full-length Industry Standard Architecture (ISA) adapter card. The product, which can also serve as an ISDN modem, can dial in to Corel's LAN video solution but otherwise can't be used across the LAN.

The ISA version, which connects to video boards via a feature connector, didn't work with our Diamond Multimedia Systems, Inc. Stealth 2000 video card and will restrict other cards from running at more than 256 colors and 800-by-600 pixels mode. Most users should opt for the PCI version to avoid these limitations.

The installation program was somewhat cryptic, and driver installation under Windows 95 was made more complex than it had to be, because Corel doesn't place the needed files in the root direc-

Users always maintain eye contact, with CorelVideo Remote's camera angle

tory of the CD-ROM. The dialing program's interface is somewhat confusing.

Corel entered the videoconferencing market last year and just released Version 1.1 of the Remote software. With so many minor problems in the current product, we suggest you wait for Version 2.0 before you take another serious look.

PRODUCT REVIEW

DESPITE its aging hardware, the Intel ProShare Conferencing Video System 200 handles its task well. Installation may be an overwhelming barrier,

The heart of the ProShare 200 is a set of two

ISA cards. In systems that already have a modem and sound card, adding two ISA cards may be impossible. And the boards use two

interrupt request spaces, which are precious on multimedia or networked machines.

Once installed, the unit performed well. On a network, the video was flawless. When using 128K bit/sec. ISDN, the images were acceptable at a 12-to-16 frame/sec. rate and slightly better when using a 200-MHz Pentium MMX computer. The dialer is easy to use, and the controls that pan or zoom the video and handle the audio are intuitive.

The ProShare software offers excellent whiteboarding and document sharing, and the system also works with Microsoft's NetMeeting software. The new ProShare 2.0A software doubles as an answer-

ing machine to accept video messages while you're out or screen calls while you're in.

Although the Intel system is relatively inexpensive, certain options can increase the cost. A full-duplex speakerphone costs \$395, and the single copy of the LANDesk Personal Conferencing Manager required to use the units on a LAN costs another \$495 and works only on Windows 3.x. Despite the added costs and problems in shoehorning the hardware into a computer, the ProShare 200 system deserves a close look.

Desktop videoconferencing, page 84

Getting started

- Most desktop videoconferencing systems have common features such as a small color camera that sits atop your computer's monitor and an earphone/microphone headset for audio. Some systems include a full-duplex speakerphone; on others, it can cost several hundred dollars extra.
- ■The hardware usually includes one, two or three ISA or PCI boards. The systems use your computer's monitor to display the video.
- ■Most systems use standard networking hardware and IPX and TCP/IP protocols for making connections over a LAN. Expect smooth, television-quality, 30 frame/sec. pictures when working over the LAN.
- For remote connections, all systems use basic rate ISDN, which operates at 128K bit/sec., and some systems can use six B-channels, which can transmit at up to 384K bit/sec. Also, all units require an additional network terminator (NT-1), which costs \$100, to convert the ISDN signals. Only the RSI unit includes an NT-1 as standard equipment.
- The bandwidth of the ISDN connection significantly affects image quality. At 128K bit/sec. rates, expect only 12-to-15 frame/sec. video with some jerkiness or blockiness in the video. With systems that run at 384K bit/sec., you get the same high-quality images available on room-conferencing systems or through LAN connections.
- Also expect Windows 3.1 and/or Windows 95 document conferencing software that offers a sharable on-screen whiteboard and the ability to jointly edit documents under any Windows program and transfer files without breaking the connection. However, virtually every manufacturer's collaborative software is incompatible with competitors' software.
- ■Although any computer that has a 486 chip running at 66 MHz or faster can be used, you can get slightly better video performance (2 to 4 more frame/sec.) when using 128K bit/sec. ISDN with 166-MHz or faster Pentiums. Expect another 2 to 6 frame/sec. on computers that have Pentium MMX CPUs when revised videoconferencing software is released lat-

THE MINUTE

STARLIGHT NETWORKS, INC. announced that Smith Barney, Inc. will deploy its StarCast IP multicast and video-on-demand software across a satellite network to 470 remote branches. — Network World, Feb. 17

Low-end, inexpensive (\$300) packages that outfit a PC for videoconferencing include CONNECTIX CORP.'s VideoPhone, SPECOM TECHNOLOGIES CORP.'s Internetvideo Phone, VDONET CORP.'s VDOphone and WHITE PINE SOFTWARE, INC.'s CU-SeeMe. These software-based desktop packages provide basic functionality via LAN, ISDN and serial modem connections. — Network World, Feb. 10

FIRST VIRTUAL CORP. in Santa Clara, Calif., announced software video applications to be launched on intranets with a Navigator or Internet Explorer browser. — Computerworld, Jan. 31

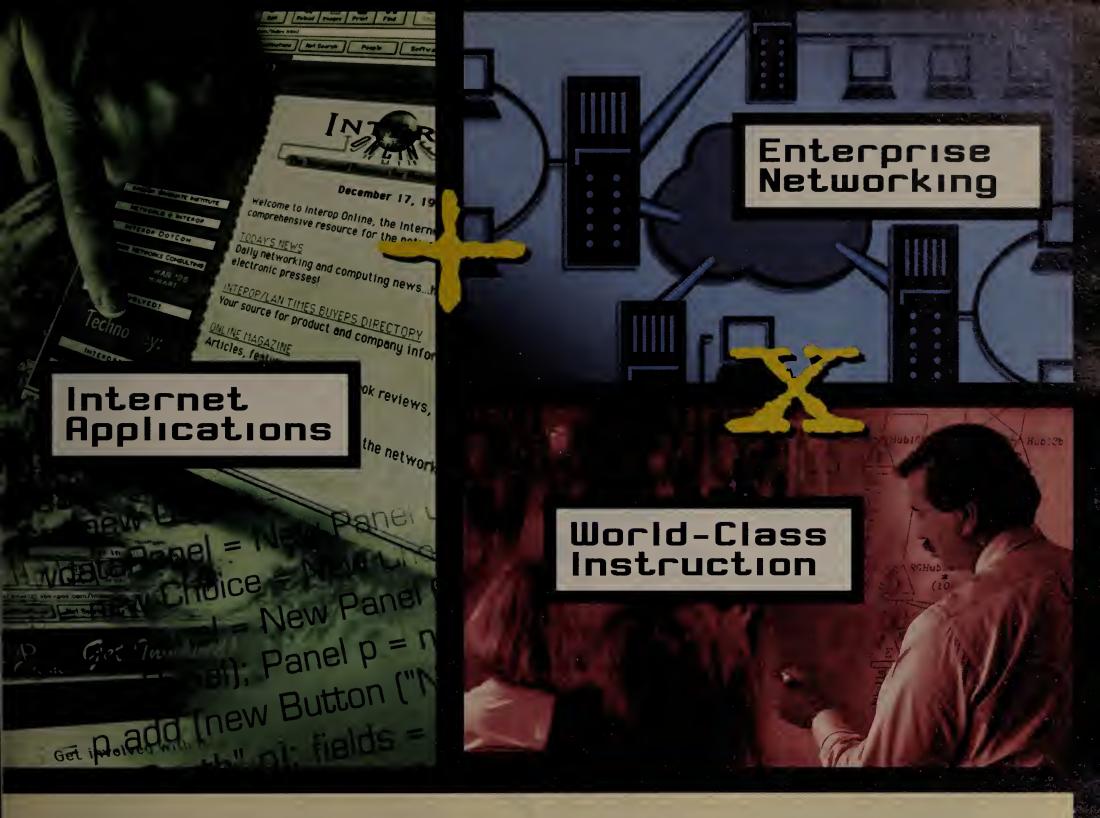
INTEL's new MMX chip, now appearing in PCs and notebook computers, will allow multimedia applications such as videoconferencing and presentation speed across users' screens.

MICROSOFT's NetMeeting 2, currently in beta testing, offers chat, a whiteboard, Internet telephone and videoconferencing for the Internet.





Full-screen video window identifies other conferencing participants



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VIDEOCONFERENCING

CONTINUED FROM PAGE 82

PRODUCT REVIEW

Live200

\$1,495 **PictureTel** (800) 874-2835 www.pictel.com

THE PICTURETEL LIVE 200 is a credible videoconferencing product that is undergoing a metamorphosis. The current product delivers an acceptable picture and crisp sound over 128K bit/sec. ISDN. Microsoft has licensed Picture-Tel's LiveShare collaborative software for use in

its NetMeeting software. The Live200 is also the only unit to offer full-duspeak-

erphone audio as standard equipment.

If your company already has a PictureTel roomconferencing system, the Live200 has an advantage. Although all units in this review can work with one another and with room systems over ISDN (the H.320 standard), the Live200 offers more clear, crisp video and audio than other units — and even better quality when connecting to a PictureTel room system.

But the Live200 is missing several pieces. It doesn't work over a LAN, isn't fully compatible with Microsoft's NetMeeting and doesn't offer a 384K bit/sec. ISDN connection. Expect LAN capa-

bility soon and NetMeeting compatibility plus add-on hardware for 384K bit/sec. ISDN rates by year's end.

Given its good picture and excellent sound, the Live200 is a sure shot for connecting a remote office to the corporate office. With some patience, the LAN, full-motion video and universal document conferencing pieces will fill out a good choice.



Live200 is interoperable with all other PictureTel desktop and group videoconferencing systems

PRODUCT REVIEW

> **Business** Traveler

\$7,495 **RSI Systems** (800) 496-4304 www.rsisystems.com THE RSI BUSINESS TRAVELER is a stand-alone videoconferencing-only system. Self-contained in a suitcase and weighing in at more than 30 pounds, the Business Traveler is an ideal but expensive solution when videoconferencing on the road is crucial.

The unit sets up in about five minutes, with or without a computer. For computerless operation, the unit connects to a television. Otherwise, the unit hooks to a Macintosh or Windows PC via the SCSI-2 port. It includes a full-duplex speakerphone and a remote-controlled pan-and-zoom camera.

> In testing, the picture and sound quality was excellent for 128K bit/sec. ISDN, which still shows minor jerkiness. Unfortunately, the unit doesn't offer document conferencing software, and few hotels offer ISDN lines in their rooms. But if your needs are mobile and you stay at the right place, the Business Traveler keeps you in the picture.

De Voney is president of Seattle-based DVA, Inc. chrisd@cybercritic.com.



and can be reached at

USER VIEW

Videoconferencing still needs some focus

By Joseph Jesson

long with marquee signs that proclaimed the end of the Earth as a result of overpopulation, the notion of desktop videoconferencing was highlighted at the 1964 World's Fair in New York. Well, here we are in early 1997 with renewed promises of desktop videoconferencing, and it still isn't quite what it needs to be.

My company, Amoco Corp., is like many organizations. The clear business driver for desktop videoconferencing is the need to work together regardless of distance. Our goal is to arrive at decisions and to work on team projects without forcing the team to fly to one location.

When several of the Chicago-based applications support folks were asked if they would move from Chicago to Tulsa last year, they found a new affinity for the idea of sharing Windows-based applications while viewing one another through a desktop videoconferencing system. Rather than move expertise and transfer technology from one location to another, Amoco set out to evaluate desktop videoconferencing systems, including Intel's Pro-Share Conferencing Video System 200, RSI Systems' Eris and PictureTel's Live 200 — all fully H.320-compatible with room videoconferencing systems.

Overall, the effort has had lukewarm acceptance, in part because of internal management changes and delays primarily related to ISDN installation. As with any groupware tool, acceptance hinges on getting the tool integrated into the work process, and this hasn't been accomplished yet. We like ProShare, but we also like the Eris unit if true portability is required. We're also investigating the lowest-cost solutions such as White Pine Software's CU-SeeMe, Microsoft's NetMeeting and various H.323compatible tools, which have lower frame rates.

Amoco now has more than 50 desktops with videoconferencing. Overall, getting the hardware installed wasn't too difficult, with the exception of laptops and dockables. The ProShare 200 requires two cards to be installed, and many dockables didn't have two slots available. The real problems were associated with getting ISDN to the desktop. ProShare does offer two connection options: Intranet (TCP/IP) and ISDN. A local LAN segment would be fine for carrying the requisite 200K bit/sec. traffic, but the WAN session may route traffic over a lower-bandwidth path. We also wanted compatibility with our more than 35 full-size videoconference rooms, so our decision was to require ISDN.

Amoco is waiting for costs to drop before we advance our effort. As costs fall, performance continues to improve. A roomsize videoconferencing system runs between \$50,000 and \$100,000, while reasonable quality desktop systems can cost approximately \$1,500 — and that price is dropping quickly. The least expensive desktop videoconference systems, such as CU-SeeMe and NetMeeting, achieve excellent application sharing results but are quite poor for video and audio.

The verdict is still out on our desktop videoconference efforts as we struggle with success/failure metrics. We don't like "timesavings" and other nebulous soft benefits and aren't comfortable with simple travel avoidance numbers.

What Amoco would like to ultimately create is an instant (portable) worldwide collaborative environment. We aren't at this stage yet, but the recent spate of desktop videoconference tools, along with implemented ITU standards (H.320, H.323, T.120) that comprise a collection of low-cost groupware components, may finally offer reality to the promises.



Jesson is an information technology consultant at Amoco in Chicago.

Portability sets RSI's Business Traveler apart from other videoconferencing systems

In Depth

The Association for Computing Machinery (ACM) was founded in 1947, which makes it the elder statesman of information technology groups. To celebrate its 50th anniversary, the ACM is looking ahead to the next half-century.

One major marker in this celebration will be the March publication of *Beyond Calculation: The Next Fifty Years of Computing*.

Editors Peter J. Denning and Robert Metcalfe invited nearly two

dozen of the industry's pioneers and clear thinkers to submit essays. The collection looks at scientific, social and economic effects of the continuing revolution in computing.

Computerworld is devoting four In Depth sections to exclusive excerpts from Beyond Calculation. This week's chapter, the last in the series, is by Terry Winograd, professor of computer science at Stanford University.

broader broader brush

By Terry Winograd

N THE NEXT 50 YEARS, the increasing importance of designing spaces for human communication and interaction will lead to expansion in the aspects of computing focused on people, rather than machinery. The methods, skills and techniques concerning these human aspects are generally foreign to mainstream computer science, and it is likely that they will detach (at least partially) from their historical roots to create a new field of "interaction design."

The computing industry will continue to broaden its boundaries — from machinery to software to communication to content. The companies that drive innovation will not be those that focus narrowly on technical innovation but those that deal with the larger context in which the technologies are deployed.

As computing mingles with social disciplines, new professions will evolve





A broader brush, page 86

broader brush

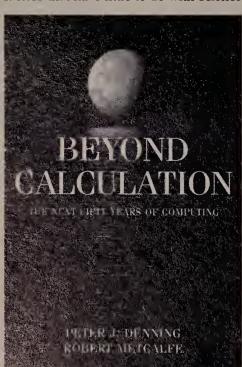
CONTINUED FROM PAGE 85

As the focus of commercial and practical interest continues to shift, so will the character of the people engaged in the work. The most exciting new research and development in computing will not be in traditional areas of hardware and software but will be aimed at enhancing our ability to understand, analyze and create interaction spaces. The work will be rooted in disciplines that focus on people and communication, such as psychology, communications, graphic design and linguistics.

As computing becomes broader as a social and commercial enterprise, what will happen to computer science as a professional discipline? Will it extend outward to include graphic design, linguistics and psychology? What would it mean to have a science of that breadth? It is more realistic to imagine that computer science will not expand its boundaries but will in fact contract them while deepening its roots.

Much of the commercial success of computing-related industries will be driven by considerations outside the technical scope of computer science as we know it today, but there will always be new theories, discoveries and technological advances in the hardware and software areas that make up the core of the traditional discipline.

As an analogy, consider the world of the automobile. Success in today's automotive market is determined by many factors that have little to do with science



Beyond Calculation:
The Next Fifty Years of Computing
Edited by Peter J. Denning and Robert
Metcalfe; Copernicus, New York;
320 pages; \$27 (hardcover)

and engineering. They range from positioning a vehicle in the market to associating it with an appealing emotional image. Engineering is still important and relevant — but it isn't the largest factor for success, and it isn't the dominating force in the automobile industry.

We can expect the same kind of decoupling in the computer world. The flashy and immensely lucrative start-up companies will depend less on new technical developments and more on the kinds of concerns that drive the automobile industry. The computing industry will come to encompass work from many different professions — one of which will be the computer science profession, which will continue to focus on the aspects that can be best approached through its formal theories and engineering methods.

In the midst of this interdisciplinary collision, we can see the beginnings of a new profession, which might be called interaction design. While embracing many disciplines, it has a distinct set of concerns and methods. It draws on elements of graphic design, information design and concepts of human/computer interaction as a basis for designing interaction with (and habitation within) computer-based systems.

Although computers are at the center of interaction design, it is not a subfield of computer science. Software is not just a device with which the user interacts; it is also the generator of a space in which the user lives. Interaction design is related to software engineering in the same way architecture is related to civil engineering.

As well as being distinct from engineering, interaction design does not fit into any other existing design fields. If software were something the user just looked at rather than operated, traditional visual design would be at the center of software design. If the spaces were actually physical rather than virtual, then traditional product and architectural design would suffice. But computers have creat-

ed a new medium — one that is both active and virtual. Designers in the new medium need to develop principles and practices that are unique to the computer's scope and fluidity of interactivity.

We have begun to explore this domain, but we are far from understanding interaction design.

A striking example is the chaotic state of Web page design. The very name is misleading in that it suggests that the World Wide Web is a collection of "pages," and therefore that the relevant expertise is that of the graphic designer or information designer. But the "page" today is often much less like a printed page than a graphic user interface — not something to look at but something to interact with. The page designer needs to be a programmer with a mastery of computing techniques and program-

ming languages such as Java. Yet something more is missing in the gap between graphic arts and programming. Neither group is really trained in understanding interaction as a core phenomenon. They know how to build programs, and they know how to lay out text and graphics, but there is not yet a professional body of knowledge that underlies the design of effective interactions between people and machines and among people using machines. With the emergence of interaction design in the coming decades, we will provide the foundation for the "page designers" of the future to master the principles and complexities of interaction and interactive spaces.

CULTURAL CHANGES

Imagine that on the 50th anniversary of a fictitious Association for Automotive Machinery, a group of experts in the 1940s was asked to speculate on the next 50 years of driving. They might well have envisioned new kinds of engines, automatic braking and active suspension systems. But what about interstate freeways, drive-in movies and the decline of the inner city? These are not exactly changes in driving, but in the end they are the most significant consequences of automotive technology.

Successful interaction design requires a shift from seeing the machinery to seeing the lives of the people using it. In this human dimension, the relevant factors become hard to quantify, hard even to identify. This difficulty is magnified when we try to look at social consequences.

Will the computer lead to a world in which our concept of individual privacy is challenged or changed? Will online addiction become a social problem to rival drug use? Will political power gravitate toward people or institutions that have the most powerful communications technologies or who aggregate control over

media? Will there be a general turning away from computing technologies in a "back-to-nature" movement that reemphasizes our physical embodiment in the world?

There is a complex interplay among technology, individual psychology and social communication, all mixed in an in-

tricate, chaotic system. Details that seem insignificant today may grow into major causal factors over the next 50 years. Trends that seem obvious and inevitable may be derailed for what currently appear to be insignificant reasons.

design requires
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Interaction

Interaction design in the coming 50 years will have an ideal to follow that combines the concerns and benefits of its many intellectual predecessors. Like the engineering disciplines, it needs to be practical and rigorous. Like the design disciplines, it needs to place human concerns and needs at the center of design; and like the social disciplines, it needs to take a broad view of social possibilities and responsibilities. The challenge is large, as are the benefits. Given the record of how much computing has achieved in the last 50 years, we have every reason to expect this much of the future.

Winograd's early research on natural language understanding by computers has been widely cited in the field of artificial intelligence. He has written and edited several books, including Understanding Computers and Cognition: A New Foundation for Design (cowritten with Fernando Flores) and Bringing Design to Software (co-edited with John Bennett and Laura De Young).

Winograd is a founder of Action Technologies, Inc., which is a developer of workflow software, and sits on the national board of Computer Professionals for Social Responsibility, of which he is a founding member and past president. At Stanford, he directs the Project on People, Computers, and Design and is developing a teaching and research program on human/computer interaction design.

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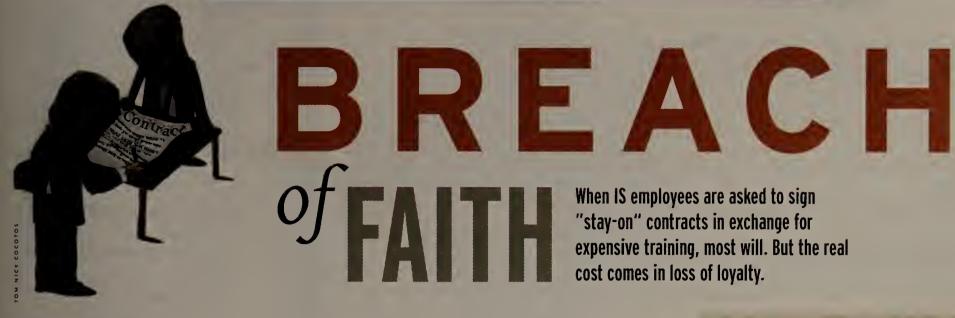
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IT Careers



When IS employees are asked to organize asked to organize the stay-on" contracts in exchange for expensive training, most will. But the real cost comes in loss of loyalty.

By Dana Crenshaw

"Tom, can I talk to you for second?"

Tom enters his manager's office.

"Tom, we have your request to attend SAP training. It has been approved. However, you may attend the training only on the condition you sign this agreement. Take a moment to look it over, sign it and then return it to me."

Tom takes the document hesitantly and wonders what he did to invoke distrust from his manager. After reading the document thoroughly, Tom reluctantly signs the agreement and returns it to his manager.

Though not an actual encounter, the above scenario is reflective of what's happening in a growing number of information systems organizations, where IS employees are asked to sign "stay-on" contracts in exchange for investments

Computerworld asked several IS professionals to share their experiences and thoughts on such contracts. Most employees said they would sign an agreement if asked to do so. But more than half indicated that they would leave their current employer if the right job opportunity came along before the agreement expired.

In general, IS employees view the agreement as a sign of distrust and insecurity on the part of the company. And if push came to shove, most employees said they would expect their new employer to handle any penalty — either by paying the former company or giving the employee a signing bonus as compensation.



Bruce B. Wilson

Software engineer TRW, Inc., Atlanta

"When I first learned our programming teams were to receive PowerBuilder train-

ing, I was excited. This sounded like the first step that needed to be taken toward moving toward a Windows development platform. But when I first heard we would be required to remain with our current employer for at least six months or pay the expensive training costs, I was not very happy.

"Although it sounded like indentured slavery, I signed on the line and took the training. Upon reflection, this doesn't sound so horrible and does, in fact, sound fair. Ironically, we received the training, but we have not had any chance to use the training."



Alan Knight

Director

Providers of Telecommunications Training Kurnow, U.K.

"Many years ago, I was sent such an agreement as a condition of being enrolled in a four-year degree course. I was annoyed that they thought I could be that disloyal and sent it back without comment and unsigned. I got in the course anyway and worked for them for many years after the course.

"I do believe that old-style agreements, if they have no obligations on the employer's side concerning terms of employment, are 'binding in honor' only.



Sean Green

Network administrator/engineer NCR Corp., Atlanta

"I was approached about signing a training agreement when I requested training while at my former company. Even though I signed, I

disagreed with the concept of the agreement because it was based on the insecurity of the company. The company [was] afraid I would take the training and then leave.

'I signed the agreement because I really had not been with the company for long. I had only been there a little longer than a year. So, I did not discuss it with anybody; I just signed. Now, I don't think I would sign one because I have already paid my dues. I am a five-year veteran, and by now, I have proved my loyalty and should not have to sign an agreement to receive training."



Phil Weber

Independent software consultant Tigard, Ore.

"I probably would [sign an agreement], but I think it sends a negative message about

a company's willingness to invest in its people. "If I was asked to sign such an agreement as a condition of employment, I probably would not accept a job with this company, not because of the agreement itself, but because of the underlying attitude it betrays."



Robert B. Dickson

Data administrator

Family Restaurants, Inc., Irvine, Calif.

"I've heard of this policy from time to time. It clearly sends a signal to the employ-

ees that management doesn't trust them. Bad idea.

"Rosabeth Moss Kanter, in her book When Giants Learn To Dance, states that companies can't guarantee lifetime employment, but they should guarantee lifetime employability — by training the staff in skills currently demanded in the market. That way if the company has to lay off employees, they should at least go into the market with current skills."

Crenshaw is a freelance writer in Austell, Ga.

TIES THAT BIND

Computerworld asked John M. Stec, an attorney in Barrington, Ill., under what conditions training contracts are legally binding for IS professionals.

CW: Can you provide insight into the legal aspect of these agreements?

STEC: I am familiar with them. I have prepared a couple of them. [The agreements are] as binding as any other contract. There needs to be a meeting of the minds as to what is being agreed to and, for that reason, it should be in writing [with] some consideration to bind the parties. Specifically, in Illinois — as is the case I believe in most states — if an employee is offered and accepts a knowing choice between taking the training and staying without reimbursement, or with reimbursement if he or she leaves, the employee and employer have entered into a contract. Once the employee takes the training, he has committed to either staying or reimbursement. Additionally, there is no way that the employer can enforce an obligation to keep the employee working — there is no indentured servitude in the U.S. but reimbursement of monetary damages may be enforceable.

CW: Let's say a programmer has signed a 12-month agreement for training in client/server technology. Three months into the contract, he is let go because of cutbacks. not his performance. Is the company obligated to keep him around for 12 months?

STEC: Typically my agreements specify that the contract that supplies the obligation to reimburse does not alter the at-will employment relationship between the parties. Thus, the employee may be terminated at the discretion of the employer and, of course, is thereby not obligated to reinburse for the training. There may be an open issue here as to whether the employer must fund the training for the employee if he or she is let go in the training period and then desires to pursue it on his or her own time after being laid off.

CW: Are you familiar with any cases on this issue?

STEC: None that I air aware of

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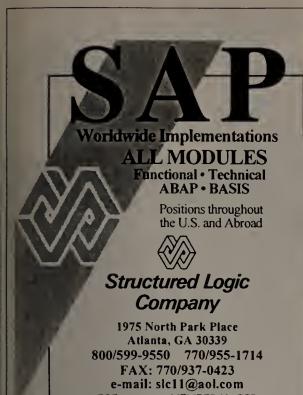
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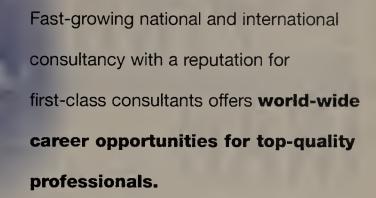
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IT CAREERS

REGIONAL SCOPE North Carolina/

NFORMATION Systems jobs are plentiful in North Carolina, thanks to a robust local economy and continued expansion of technology firms in the Research Triangle area.

Compensation rates are trending upward. And according to the **Employment Security Commis**sion of North Carolina, unemployment dropped to a bare 4% last October — which is effectively "almost zero unemployment," one hiring manager says.

That compares with a year earlier when the market was already heating up and unemployment was only 4.4%. "We are continuously working to improve our business climate in North Carolina and ... many companies have taken notice," says David Phillips, the state's commerce secretary.

"The market is standing straight up," says Daren Bitter at RHI Consulting in Charlotte, a placement firm and a division of Robert Half International, Inc.

Bitter says demand is represented across a wide range of skills, including trainers, support desk staff, technical writers, networking, client/server development and — driven by year 2000 conversion efforts — Cobol, DB2 and CICS.

'Charlotte is stereotyped as a banking town. But there is actually more manufacturing than banking in this [area], and we see a lot of the newer technologies with both," Bitter says.

TECH BOOM

The job market is equally rosy in the western half of the state. Frank Schoff, president of Management Recruiters, Inc. in Cedar Mountain, says it's a great time to be in information technologies, at any level. The region's lower cost of living means the increasing

levels of compensation represent a growth in real buying power.

Employers from a range of sectors support this view of the region's market. "Right now the biggest need we are facing is for legacy-oriented programmers," says Andre Goodlett, strategy staff planning supervisor at Food Lion, Inc. in Salisbury. That need is driven by year 2000 efforts.

Food Lion also needs project managers, having found that downsizing away that layer of IS management is actually counterproductive, Goodlett says.

"In those skill sets, it is a sellers market, where you can name your price," Goodlett says.

As a result, Food Lion is recruiting extensively outside North Carolina and is relying heavily on contractors.

"But we find that, especially with legacy skills, there just aren't enough people available, and the quality of those we are able to locate is going down," Goodlett

GOVERNMENT OPPORTUNITIES

State government is also facing a large year 2000 repair bill — perhaps \$50 million in the next three years. And that means lots of opportunities for IS professionals, says Ziegler Miller, assistant secretary for planning, development and technology at the North Carolina Department of Revenue in Raleigh.

"We find that the vendors are gobbling up all the resources, so that those traditional skills like Cobol are very much in demand," Miller says. But because the state is tackling year 2000 as part of an upgrade and modernization effort, there is also plenty of work in client/server environments.

"The job market is very favorable for college graduates with two to three years of experience with C, C++, Unix, middleware, than to be an IS professional fielding job offers in the Research Triangle region - Alan R. Earls

telecommunications or networking technologies like [Novell, Inc.] NetWare," Miller says.

A similar tale is told at the federal level, where Denise Kleinfelter, chief of systems programming at the National Center for Health Statistics in Durham is facing year 2000 conversion challenges.

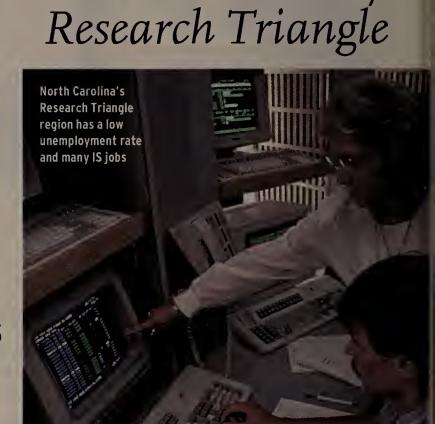
"We are planning on revisiting any kind of homegrown programming and database applications," Kleinfelter says. "It may affect the hiring of contractors the most. Many times you have employees [with traditional skills] who have retired or gone on to private industry."

Kleinfelter says the agency is trying to decide whether to revisit older applications where the human infrastructure is no longer available to support them or to rewrite the applications with newer technologies.

Decision-making is slowed by funding cutbacks, she says. But somehow the work must get

Of course, some organizations are ahead of the curve on year 2000. James Euliss, director of IS at ICI Americas, Inc. in Durham, admits the region is a good market for IS professionals. But he says his firm isn't looking to ramp up in the near future. "Our operating systems are already compliant," he says.

Earls is a freelance writer in Franklin, Mass.



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| CIO/VP | \$76,000 | \$96,000 | | | |
| Director of systems development | \$49,000 | \$74,000 | | | |
| Senior systems analyst | \$51,000 | \$54,000 | | | |
| Programmer/analyst | \$44,000 | \$39,000 | | | |
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| Source: Computerworld's 1996 Annual Salary Survey | | | | | |

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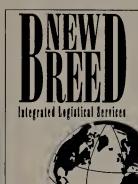
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Marketplace ECHNOLOGY WA

Many ways to share . . .

By Amy Malloy

YOU HAVE A library of data-intensive CD-ROMs that multiple users need to access. But you don't want to buy a copy for each user, and you don't want to run from terminal to terminal inserting CD-ROMs. The logical conclusion is to share CD-ROMs across the network.

The decision to share CD-ROMs may be simple. Devising the best approach requires more thought because options abound and costs vary from the low hundreds to tens of thousands of dollars.

The high-end prices will go down, predicts David Strom, president of David Strom, Inc., a consultancy in Port Washington, N.Y. Price deters some companies from adopting a CD-ROM networking solution, analysts say.

Phoenix-based MicroTest, Inc.'s CD-Now is one of several software packages that can turn a desktop into a CD-ROM server. Another option, placing CD-ROMs on a regular file server, lets users share titles, but analysts say this is easier in a Microsoft Corp. Windows NT environment than a Novell, Inc. NetWare environment.

"If you are running NetWare, can it handle the additional burden of running

CD-ROM?" asks David Doering, president of TechVoice, Inc., a consultancy in Orem, Utah. If it can't, a stand-alone product might work best, he says. But vendors also offer CD-ROM server software for the NetWare environment.

Some of the stand-alone, plug-and-play products cost less than other solutions, but those products offer less capacity, says Ken Weilerstein, an analyst at Datapro Information Services Group, Inc. in Delran, N.J.

Mediapath Technologies, Inc. in Mount Laurel, N.H., offers another type of product, MediaAgent, which catalogs, tracks and provides networkwide access to CD-ROM titles. Strom recommends MediaPath for companies that move

around a lot of CD-ROMs. "As soon as you get a dozen-plus CD-ROMs, you can lose track," he says.

FACTORS TO CONSIDER

When choosing a solution, look at how many users will share the CD-ROMs, the users' locations and how many routers the information will go through — with every router hop, there is a cut in performance, Strom says.

When purchasing CD-ROMs to share, make sure the CD-ROM will run over the network. In some cases, only a network version of the CD-ROM will work in this environment, or a CD-ROM might require additional licenses.

"You may violate the license if you only

bought a single application," Doering

The CD-ROM market is currently undergoing changes. The Internet and forthcoming Digital Video Disc (DVD) drives -- which will store as much as 17G bytes, as opposed to the 650M bytes that CD-ROMs hold --- alter the means of sharing information. So companies may outgrow current CD-ROM networking solutions.

But vendors do offer intranet solutions — an evolving trend — for sharing CD-ROMs; the Internet and CD-ROMs are not distinct areas anymore, Weilerstein says. Hypertext Markup Language provides common ground where proprietary packages and competing vendors exist, he says.

DVD drives and software will soon replace CD-ROM drives and software. Freeman Associates predicts that by 2001, DVD drive sales will total 89 million and CD-ROM drives sales will be zero. The Santa Barbara, Calif.-based research firm estimates that 3 million DVD drives and 62 million CD-ROM drives will be sold this year.

Malloy is Computerworld's assistant researcher.

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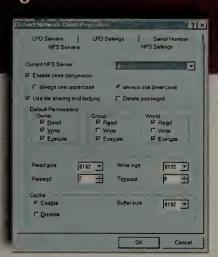
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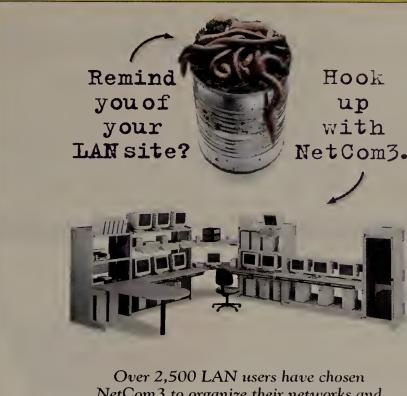


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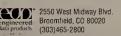
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The Week in Stocks

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| Hewlett Packard Co. | Intel Corp. | | | |

N D U S T R Y A L M A N A C

Tricord stops making servers

hen Tricord Systems, Inc. (Nasdaq: TRCD) began to lose market share during the past year, it needed to fight back. Its high-end enterprise servers, which can run Windows NT and Unix operating systems, were being overtaken by lower-priced Wintel-based servers from major vendors. Instead of battling the market head-on, Tricord has decided to take advantage of it.

Tricord officials last week said the company would stop making servers and concentrate on its network-attached storage products for Windows NT. But Tricord's decision to end server sales by year's end did little to boost its standing on Wall Street. Its stock tumbled to less than \$1 by the middle of last week.

The company's network-attached storage software product was part of its enterprise server but wasn't sold separately. It is a distributed file system for Windows NT that can manage a server's workload and boost performance.

Analysts say they aren't surprised by the move. They say it was a result of competition from companies that sell Intel Corp. hardware platforms that run Windows NT. That, along with aggressive pricing, shrinking margins and strong reseller connections by companies such as Compaq Computer Corp., is making it difficult for the smaller server makers to thrive.

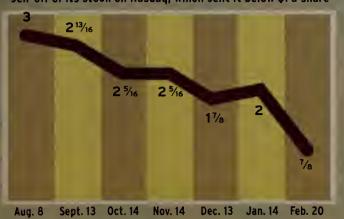
"Wintel has gobbled them up," says Jim Garden, an analyst at Technology Business Research, Inc. in Hampton, N.H.

Tricord is banking on Windows NT's growth to increase demand for storage that links directly to the network, says Sean Derrington, an analyst at Meta Group, Inc. in Stamford, Conn. "While I think it is a good move technically, I still think they have some opposition to face in the market," he says.

--- Patrick Thibodeau

FROM DOLLARS TO CHANGE

Tricord's decision to stop producing its servers prompted a sell-off of Its stock on Nasdaq, which sent it below \$1 a share



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| хсом | 12.75 | 4.75 | CROSSCOMM | 8.38 | -0.13 | -1.5 |
| DIGI | 36.50 | 12.63 | DSC COMMUNICATIONS | 20.63 | -1.75 | -7.8 |
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| BGSS | 31.75 | 14.88 | BGS Systems Inc. | 28.50 | 0.00 | 0.0 |
| BMCS | 51.00 | 25.00 | BMC SOFTWARE INC. | 44.00 | -3.75 | -7.9 |
| BOOL | 27.50 | 14.00 | BOOLE AND BABBAGE | 26.00 | 0.50 | 2.0 |
| BORL | 21.25 | 4.75 | BORLAND INT'L INC. | 7.00 | 0.63 | 9.8 |
| BOBJY | 55.50 | 8.63 | BUSINESS OBJECTS | 11.50 | -0.75 | -6.1 |
| CAYN | 11.63 | 3.81 | CAYENNE SOFTWARE INC. | 5.06 | -0.19 | -3.6 |
| CNTR | 6.75 | 2.63 | CENTURA SOFTWARE | 4.13 | -0.25 | -5.7 |
| COGNE | 39.50 | 15.75 | COGNOS INC. | 22.75 | -1.75 | -7.1 |
| CA | 67.88 | 37.63 | COMPUTER ASSOCIATES | 46.63 | -1.50 | -3.1 |
| CVN | 13.25 | 5.75 | COMPUTERVISION CORP. | 6.00 | -0.63 | -9 4 |
| CPWR | 69.25 | 21.75 | COMPUWARE CORP. | 63.75 | -1.50 | -2.3 |
| CSRE | 32.00 | 10.75 | COMSHARE INC. | 15.00 | 0.00 | 0.0 |
| COSFF | 13.88 | 6.38 | COREL CORP. | 6.69 | 0.19 | 2.9 |
| DWTI | 8.25 | 2.63 | DATAWARE TECHNOLOGIES INC. | 4.75 | -0.75 | -13.6 |
| FILE | 67.00 | 18.38 | FILENET CORP. | 19 88 | 0.00 | 0.0 |
| FRTE | 81.75 | 24 75 | FORTE SOFTWARE | 31.00 | -1.00 | -3.1 |
| FTPS | 15.88 | 4 88 | FTP SOFTWARE INC. | 7 13 | 0.38 | 5.6 |
| HUMCF | 47.63 | 23.00 | HUMMINGBIPD COMM LTD. | 30.00 | -1.25 | -40 |
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| INGR | 19.75 | 7.75 | INTERGRAPH CORP | 8 13 | 0.13 | 1.6 |
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| PSQL | 13.75 | 5.25 | PLATINUM SOFTWARE | 10.06 | -0 56 | -5.3 |
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| PRGS | 24.75 | 1213 | PROGRESS SOFTWARE CORP | 13 38 | -1 38 | -93 |
| RNBO | 24 25 | 14 63 | RAINBOW TECHNOLOGIES INC | 17 13 | -0.25 | -1.4 |
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New tools support complex 'net sites

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to Internet applications that already exists in client/server and mainframe development tools. They will also streamline the process; they can save companies time and money or allow companies to bring development in-house instead of outsourcing it, analysts said.

For instance, Haht Software, Inc. in Raleigh, N.C., today plans to introduce a version of its HahtSite product. The software lets IS managers and business managers collaborate on building enterprise-spanning Web applications, such as customer service or order entry. The software includes tools for automating links to legacy data stores, including popular client/ server applications from SAP AG, PeopleSoft, Inc. and The Baan Co.

Collaboration tools are key elements for complex Web sites that are too large for one person to maintain, said Kenneth Leung, vice president of engineering at the TravelNet unit of Reed Travel Group in Secaucus,

Collaboration tools are key elements for complex Web sites that are too large for one person to maintain.

- Kenneth Leung, **TravelNet**

TravelNet is using Haht's software to rewrite a proprietary client/server application used in business-to-business electronic commerce and move it to the Internet. The Windows-based software lets business travelers book trips electronically.

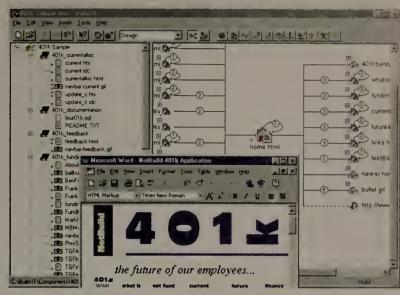
Without HahtSite, TravelNet found it time-consuming to make changes to a site, test the changes and then update the site on the Web, Leung said.

"It was great that we could just push a button and have the site updated and make changes. We didn't need a webmaster to maintain the site — the software did most of it," he said.

Bridgestone/Firestone, Inc. is using HahtSite to build an Internet application that will let users shop for tires on the Web. The site will include a database where shoppers would input a

> car's make and model to determine what kinds of tires fit. It also will include software to help users find the nearest dealer, said Phil Brown, a software developer at the Nashville-based tire company.

Centura Software Corp. in Menlo Park, Calif., next week plans to announce Version 2.0 of its ForeSite Integration Server. The software was designed as a go-between for Web sites and legacy applications. It gives Web applications easy access to information on mainframes and applications written in common languages and environments



Wallop Software's Build-IT, as shown above, was designed to facilitate the construction of large, complex Web sites

such as Visual Basic, Power-Builder and Delphi. It also includes its own high-performance server for deploying applications to the Web.

DRIVER'S SEAT

Wallop Software, Inc. in Foster City, Calif., earlier this month unveiled a version of its Build-IT collaboration software designed to put IS managers in the driver's seat. A site administrator — generally an IS manager — controls which users can access parts of the application

and who can make changes.

Other entrants in this expanding category of software include Mortice Kern Systems, Inc. in Waterloo, Ontario, and Vignette Corp. in Austin, Texas, which recently introduced similar collaboration tools.

Mortice Kern rolled out a collaboration tool set that is controlled via Java applets in a Web browser. Vignette offers a collaboration tool set for online newspapers and magazines. It was designed to allow fine control over a site's look and feel.

Browsing mainframes

CONTINUED FROM PAGE 1

the mainframe applications.

Observers point out that by putting a Web face on mainframe data and applications, companies may be more likely to extend the lives of their mainframe systems.

HANDS FULL

Data center managers are intrigued by the concept, but they also know it won't be an easy process to implement.

"There's an overwhelming requirement to get the security, as well as the right look and feel" if we want to do this, said Dan Kaberon, a mainframe clustering manager at Hewitt Associates, Inc. in Lincolnshire, Ill.

"Users know they have to do this eventually," said Ezra Gottheil, an analyst at Hurwitz Group, Inc. in Boston. "But anything built off of, or deriving data from, the mainframe cannot endanger the legacy system in the slightest."

Even companies that see clear advantages aren't jumping into browser/mainframe connectiv-

PCS Health Systems, Inc. in Phoenix, lets insurance companies access mainframe-based patient data via terminal emulation packages it provides to them.

"We'd like to provide this through Web browsers," said Joe Sherbin, a telecommunications consultant at PCS. "Then all the insurance companies would need is a free browser. As a result, there is no cost to them and no inconvenience to us.

"Still, one thing that is sorely needed is the capability to do bidirectional data transfers well" to let users running browsers update mainframe systems, Sherbin added.

Britain's Northampton General Hospital is taking small steps toward Web browser access to its mainframe transaction systems. First, it created a single, Windows-based interface to multiple mainframe applications. This interface simplifies

data entry and access for hospi-

The Dreyfus Corp. in New York opened up its mainframe CICS trading system to its corporate trading customers by using the same hardware-based security that banks use for wire transfers.

"We went with a controlled group of our high-level institutional investors," said Sri Gupta, manager of application systems. "We block access from the general public because mass

consumer market trading over the Web is still shaky."

Dreyfus is using Apertus' Enterprise/Access package to give browsers a direct connection to CICS without going through a time-consuming database staging server.

NEXT WAVE

Users should also be aware of the extra processing load that thousands of new Web-based transactions could bring to the mainframe and the extra storage

needs that may result if a company chooses to use thin clients with Web browsers to access corporate applications.

The first wave of use of these products is apparent today in intranets, which can provide a higher level of security and more control over the users' platforms than the Web.

From there, the move to Web browser access to mainframes should flourish much like the move from dumb terminals to PC-based terminal emulation software, analysts noted.

AT&T Universal Card Services lets credit-card holders access mainframe-based account data from Web browsers.

But first the Jacksonville, Fla., company tested the idea on 30,000 employee cardholders internally.

Businesses will depend on mainframe reliability and scalability to manage the complex middleware and data loads involved rather than take the time and money to port their applications to distributed, less manageable client/server systems, said Donald Czubek, president of Gen2 Ventures, a mainframe consultancy in Saratoga, Calif.

JUST LOOKING

| Vendor | Product/feature |
|--|---|
| Apertus Technologies, Eden Prairie, Minn. | Enterprise Connect and Enterprise/Access give browsers access to mainframes isolate SNA in the data cente and move the data over TCP/II |
| Wall Data, San Mateo, Calif. | In March, Arpeggio Live will convert mainframe data to HTML |
| ICL, London | Dialogue Manager 4.1 lets user access data on multiple mainframes from a Web browser screen |

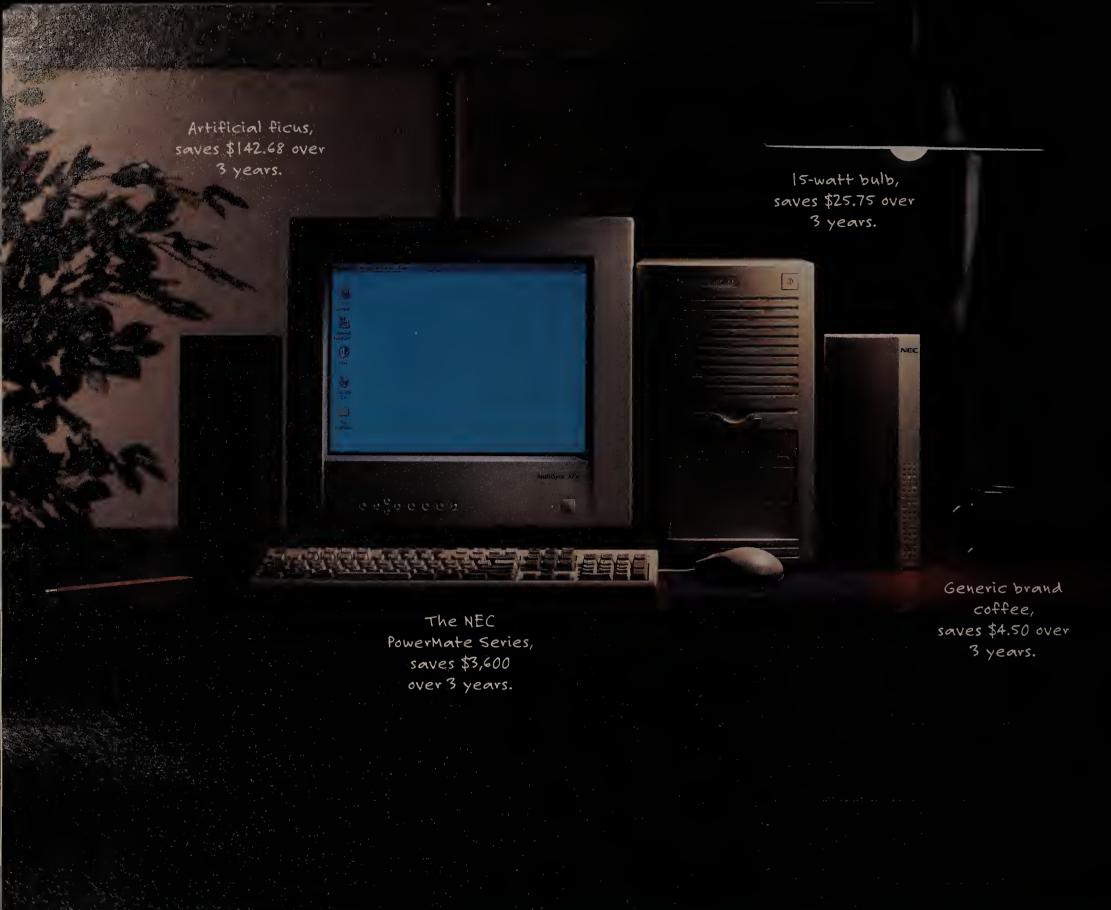
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Unmasking Marimba's big marketing push David Coursey

here is a curious human phenomenon that occurs when people don't understand something they think should make sense to them.

Rather than risk looking like dolts in front of their friends, they start to heap praise on the object of their confusion. Get a bunch of such people together and pretty soon everyone is jumping aboard — even though nobody has a clue what they're talking about.

The computer industry is filled with examples of this lemming-like, foggy thinking. Previous examples include General Magic, 3DO and the original Apple Newton. The most recent entrant is a company called Marimba, which "everyone" seems to think is "really cool." Nobody can quite explain why, though.

My take on this: Marimba is the newest fashion of the Emperor's New Clothes — which is to say, there's nothing there!

I mention this because Marimba is actively courting the corporate intranet market, looking for companies that need to distribute information to remote locations or customers. My advice, other than to stay away from Marimba, might be to

buy in to "push" technology only if you can justify the cost almost immediately. Over the next few months, prices will come down — there are, after all, more than 20 companies working on push products — and Microsoft or JavaSoft might just decide to build the technology on the products in the product in the pro

nology into a future release of their own.

So-called push technology is the market segment of the week. Marimba has built a push application, called Castanet, that distributes software and content across the Internet. Install the Castanet "tuner" and your computer will periodically poll Castanet "transmitters" for software updates and new content.

Have I mentioned that Marimba was founded by four members of Sun's Java team? And that it's funded with money

from venture capital firm Kleiner Perkins' Java fund? These facts are important because Castanet is the sort of software only a Unix geek could have designed — an unattractive user inter-

face built atop software that makes doing what you want done needlessly complex. But since the firm has the "right" people and the "right" money, Silicon Valley in general and the Java community in particular have gone gaga over Marimba.

Push applications deliver content to user

desktops. "Push" implies that the content provider drives the distribution of the data, but it doesn't work that way. PointCast, Castanet and all the others require a desktop client to go to the information provider and request new information. The client downloads the goodies in the background, giving the user the impression that the information is arriving via some sort of broadcast mechanism when all that has really happened is an automated download at a predeter-

mined time. Not quite as impressive as it seems, but effective enough if you don't need real-time data.

At least one push vendor uses a dogand-newspaper metaphor. But do you suppose people would be as excited about Marimba and the others if the technology was dubbed "fetch?" It's just a small compromise of the truth that push really doesn't push.

So far, I've loaded Castanet onto my desktop twice and removed it within an hour each time. The available content isn't very good, and Marimba has done an excellent job of making the relatively simple concept of content "channels" about as unattractive as possible.

If you want to see channels done better, spend your time with Point-Cast (www.pointcast.com), InCommon Downtown (www.incommon.com) or even iFusion's ArrIve (www.ifusion.com). Then you'll be equipped to visit the Marimba site and, like me, wonder what the fuss is about.

Coursey, an analyst and consultant, is editor of "coursey.com," an online newsletter available at www.coursey.com. His E-mail address is david@coursey.com.

Wanted: Cheap RISC makers

Charles Babcock

he advent of the network computer offers a broad new market for hardware. I'd like to see the RISC chip makers — Sun, Mips Technologies, Digital and IBM/Motorola — leap in and flood the RISC market with cheap CPUs and motherboards, capturing as much of the market as possible.

This isn't likely. The RISC suppliers just aren't used to doing business the way PC manufacturers are. They're used to producing a higher-priced chip that goes into a higher-priced computer. And if they aren't careful, they'll do the same thing with the network computer — they'll produce a more elegant machine than needed. And Intel will walk away with the crown.

That would be a shame, because the network computer has a potentially different set of priorities than what was designed in the Pentium CPU.

Indeed, Intel is far down the path of building the next Pentium, a more complicated, more feature-rich and more HPcompatible chip. All of which may overlook the faster and simpler needs of the network computer.

So why aren't the RISC chip makers seizing the day? They are in the sense that IBM and Sun are producing their own network computers. Sun's JavaSoft is producing the JavaStation, which has an anticipated price of less than \$750.

Great. But that isn't what I mean when I say I want RISC chip makers to flood the market. They have always been so proud of their designer labels that they've seeded few clone makers.

Doing so, of course, tends to cheapen the brand name and undercut the lead

manufacturer's prices. But the network computer opens a more hardware-neutral playing field, and the RISC makers must pull out all the stops to avoid conceding the chip market to Intel.

After all, IS managers responded enthusiastically when Compaq and Dell established that they can produce PCs as well as IBM can. Why not unleash the same wide competition among RISC makers instead of keeping them penned

in their private preserves? For the IS manager who is buying thousands of desktops at a time, a range of options and choices is a healthy thing.

I say bring on the clone makers — the guys who pack components in to nondescript gray boxes, slap a label on them and sell them

for less than \$500. If the RISC chips plan to have a life after the next generation of Pentiums, they'll need numbers as well as style.

Sun Microelectronics, the hardware arm of Sun, is about to take a giant step in this direction, but I don't see the other

RISC suppliers doing so.

Sun Microelectronics is producing SPARC CPU motherboards for clone makers. They were designed to work much like Intel motherboards.

But Sun still must make a leap of faith and cut prices to a level competitive with comparable Pentium CPU boards. The payoff would be a gain in numbers shipped, a corresponding gain in market share and a reduced cost per SPARC unit produced.

The record of clone makers in the SPARC market so far has been a sorry one. I visited what I considered to be the leading SPARC clone maker a year ago — Solbourne Computer, Inc. in Longmont, Colo. I was dismayed to find it had converted itself into an Oracle applications consulting firm.

Sun Microelectronics President Chet Silvestri said his unit is prepared to sell SPARC motherboard designs so other manufacturers can dumb them down to produce cheaper, less feature-rich units.

Now that's the spirit. That approach never hurt Intel.

Babcock is Computerworld's technical editor. His Internet address is charles_babcock. @cw.cem.





Patent watch

Recently issued U.S. patents (Patent number, inventor/assignee, date issued)

lug-in PC card that monitors interruption requests at the BIOS level to prevent damage from virus attacks. If the device notices internal attempts to alter or destroy data, processing is suspended, and the user gets a warning message to decide whether to proceed. (5,598,531, Andrew R. Hill, Jan. 28)

oam wrist cushion for keyboard users that includes a heating element and vibrators that massage ailing wrists. (5,599,280, Wallace W. Wolden, Feb. 4)

computerized system for more accurate monitoring of the fetal heart rate during the human birthing process. Data is fed into a rulesbased expert system and a neural network to classify the situation as normal, stressed, indeterminate or ominous. (5,596,993, Beth Israel Hospital in Brookline, Mass., Jan. 28)

Source: MicroPatent (www.micropat.com)



WEB SITE NERDVANA

United Media has the distinction of running a profitable

Web site (www.unitedmedia.com), thanks to Dilbertmania. Advertising revenue exceeded \$1 million, and



sales - mostly of books, novelties and "Dilbert Softwear" apparel - soon will top \$1 million, too.

Ultrapractical Web sites

- Mortgage calculator (www.ibc.wustl.edu/mort. html)
- Reference library for webmasters (www. webreference.com)
- Car repairs and maintenance (cartalk.com/info/index.html)

Computerworld INDEX

Percentage of weekday comic strips in *The Washington Post* with Internet addresses: 45%

Percentage of U.S. business travelers who take a computer with them:

Percentage of U.S. homes with a fax machine last year:

||%

Estimated annual property taxes for Bill Gates' new mansion: \$550,000

Percentage of U.S. population that used E-mail last year:

Percentage in 1992:

107

Number of countries with **Internet access**:

Number of countries with access to Domino's Pizza:

dge, Mass.; In-

Source: Forrester Research, Inc., Cambridge, Mass., Internet Society, Reston, Va.; Domino's Pizza, Inc., Ann Arbor, Mich.; CLT Research Associates, New York; Decision Analyst, Inc., Arlington, Texas; <u>Upside</u>, San Mateo, Calif.; U.S. Postal Service, San Bruno, Calif.

Send your alt.cw contributions to mbetts@cw.com.

Inside Lines

Hancock may lose job to Jobs

Sources inside and close to Apple say Ellen Hancock, the executive vice president of Apple's technology office, will soon step down after less than a year at the company. An Apple spokeswoman denied the reports, saying Hancock said she has no plans to leave. But sources claim Hancock is unhappy after being stripped of her chief technology officer title. They added that she has already butted heads with recently returned Apple co-founder Steve Jobs, who they claim will take over Hancock's current position.

Digital has it ... late

A customer on Digital's Info-VAX newsgroup claims he has been getting nice little candy jars from Digital's multivendor services group as part of a promotion touting improved customer service. But, he said, the candy keeps arriving at the wrong time. The candy corn for Halloween didn't show up until two weeks after all the ghouls had gone home. The Christmas-colored mints arrived in January, and the cinnamon red-hots on Feb. 18—four days after Valentine's Day.

Lojack for laptops

To battle notebook theft, a British company has released a tagging device that cripples stolen laptops. The hardware tag from Accupage is fitted to the notebook's motherboard. If the machine is stolen, it can activate a signal that can be tracked remotely. The device also prevents a thief from accessing the notebook's hard disk, and any attempt to remove the device is supposed to make the laptop inoperable. A kit to fit the devices to laptops costs about \$150.

With a name like that, it has to be good

X Inside, a developer of software for Unix X Windows environments, changed its name last week to Xi Graphics. The company was receiving E-mail and phone requests from people who thought the Denverbased company produced more adult-oriented graphics. "I was continually having to tell people, 'No, it's not what you think,'" said Thomas Roell, the company's president and CTO. That's what happens when you let clever engineers name the company.

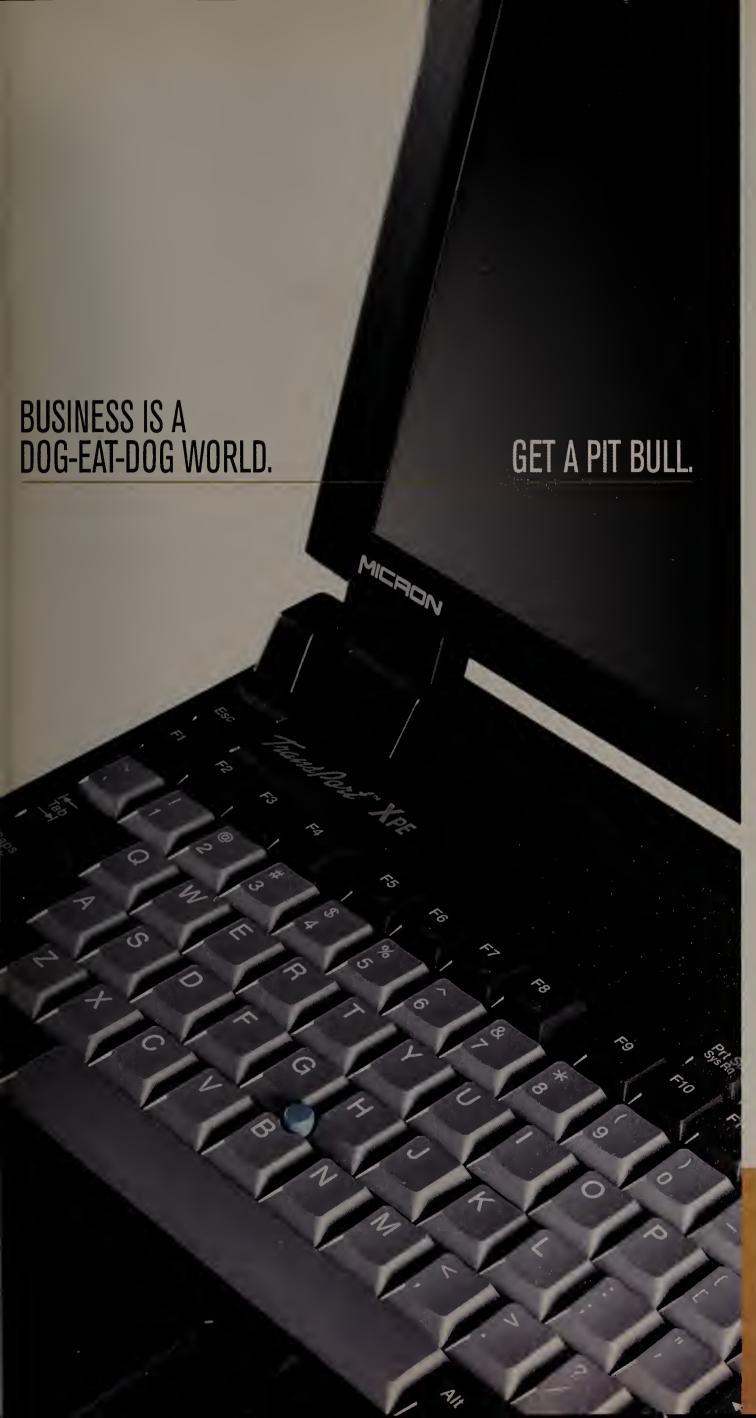
Time flies when you're developing software

At least that was the case for client/server application vendor Software 2000 in Hyannis, Mass. With the millennium quickly approaching, the company felt the need to change its name to Infinium Software, a less date-sensitive moniker. Company officials say the name Software 2000, when chosen in the early 1980s, implied a long-term, forward-thinking commitment to technology development. But now they get calls from people wondering if they can rewrite Cobol code to recognize 01/01/00 as 01/01/2000.

Bring in da noise, bring in da junk

Internet service providers typically ban their customers from sending bulk E-mail. No longer. On March 17, Philadelphia-based Cyber Promotions will allow advertisers and others to send millions of junk E-mail messages for one monthly fee. Call it Spam on Demand — or the St. Patrick's Day Massacre.

here's no escape from Microsoft or Bill Gates. A recent edition of Entertainment Weekly, for example, offered up Bill Gates, the king of silicon, as a replacement for exiting Baywatch babe Pamela Lee, the queen of silicone. Last week's American Comedy Awards presenter, funnyman David Alan Grier, offered a Shakespearean soliloguy that asked "what light through yonder Windows 95 breaks." Recent episodes of Fox's Melrose Place featured a geeky software genius with no social skills — referred to on several shows as "the next Bill Gates." Daytime TV viewers, who are used to being peppered with weight-loss ads, now are being promised higher-paying jobs if they take a Windows NT class. And one entertainment TV magazine show conducted a poll to see whose visage should be added to Mt. Rushmore. The answers: Martin Luther King, Oprah Winfrey and, natch, Bill Gates. If Bill Gates has changed your life, contact news editor Patricia Keefe at 508-820-8183 or send E-mail to patricia_keefe@cw.com.



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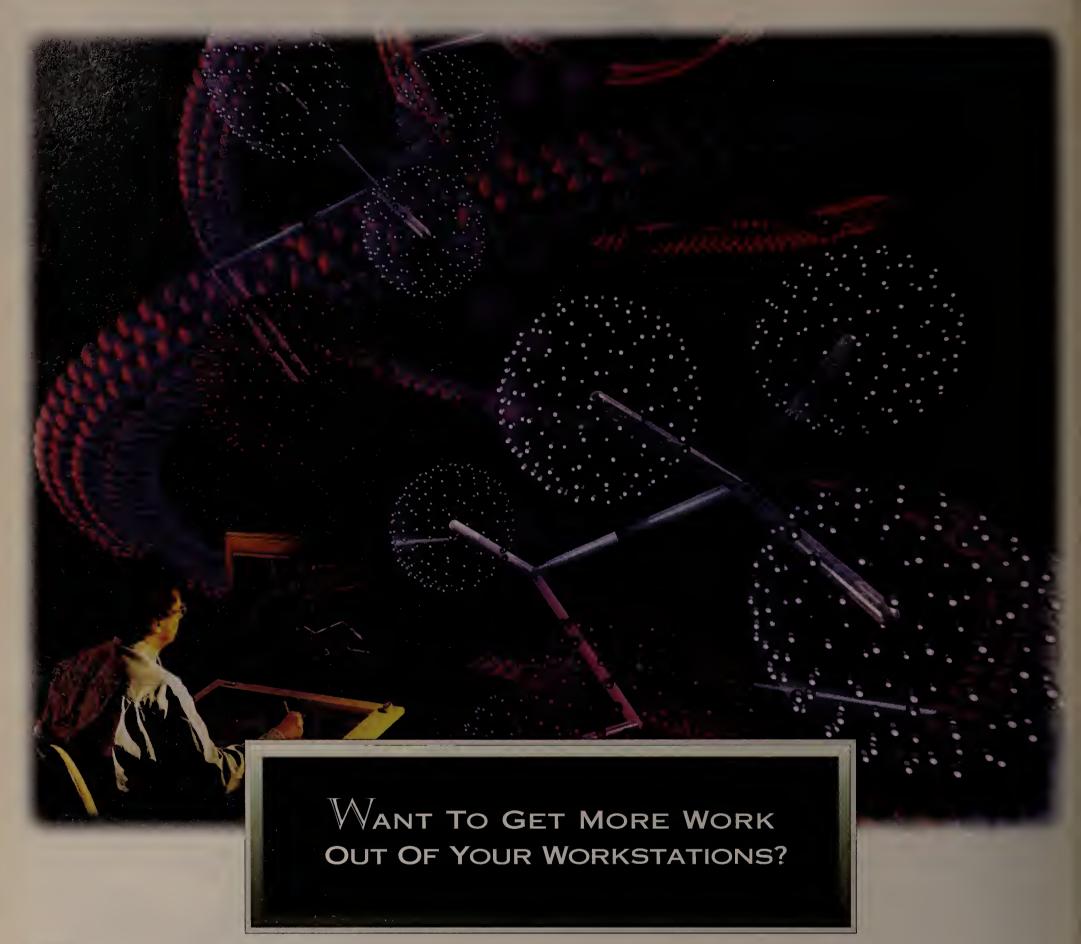
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